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ORIGINAL ARTICLES.

BLOOD, AND HOW TO MAKE IT; FAT, AND HOW TO REDUCE IT.[1]

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The valuable and suggestive little treatise whose title I have partially borrowed as the heading of this paper, contains, in my judgment, together with very much that is useful, suggestions of lines of treatment which are open to serious objection, and which, in other hands than the author's, are capable of producing injury rather than benefit. The essential feature in his management of the class of nervous and hysterical valetudinarians which he considers in the work referred to, is the systematic employment of *Massage* and the *Movement Cure*. The enforced *rest*, the characteristic which impresses itself upon the popular mind, and which has given the name to his system is, apart from its influence on the *morale* as a means of subduing the perverse will of a spoiled child, simply an accident of the massage and the acto-passive exercise, necessary to a certain extent in order to reap the full benefit of those methods, not necessarily remedial in itself, and, without them, as likely to do harm as good.

The *over-feeding* which is another portion of his plan much insisted on, is only made possible by the mechanical treatment mentioned, and but for that must prove in the highest degree pernicious. Even with this precaution, there is room for doubt whether it may not overload the emunctories to a degree entirely beyond their capability to take care of the unassimilated material, forced upon them in order to build up the adipose tissue. But even if we have succeeded in this attempt, and have plastered over the muscles and bones with a liberal layer of fat, we can be by no means sure that it will stand the wear and tear of real life and will not, with the return to home duties and cares and fatigues, "consume away like the fat of lambs." Of all the words of wisdom contained between the covers of the little treatise referred to, not one of them is at once more sententious and more truthful than the remark of that delightful old nurse that "some fats is fast and some fats is fickle, but cod-oil fat is easily squandered."

We can not be sure, however, that the carbon supplied so much in excess of the demand will be stored up exactly where we design it to be; that it will obediently take its place on the outer surfaces of the muscles, and form a graceful layer beneath the integument, and not rather deposit itself interstially in the muscular tissue, enfold the heart in a stifling blanket, or permeate the liver from capsule to gall-duct. When in charge of the hospital of the Colored Home in New York, during my student days, it was my fortune to see much of fatty degeneration, both as detected during life in the *arcus senilis*, and the tones of the flabby heart, and as revealed in the glandular organs by the autopsy. And I have not changed the opinion then formed that its frequent occurrence in that race was owing, in part at least, to the large quantities of fat pork consumed by them. The Italian ortolan, seduced by suppositious sunrises into taking five meals a day, is not as happy or lively a bird as his American cousin the bobolink, which feeds but twice. A Strasbourg goose is certainly not the synonym of health and vigor; and however tempting a *paté de foie gras* may be to the palate of the epicure, the livers which compose it were anything but a source of comfort to their original owners. Life which depended on such livers was certainly not worth living.

What constitutes the firm, elastic flesh of a healthy infant, or the exquisite lines of embonpoint in a beautiful woman is not so much the layer of fat underlying the skin, as *capillary tone* in the *rete mucosum*, in the fat itself, and in the muscles.[1] Take away that essential element, and the skin either shrinks into the rigid wrinkles of collapse, hangs in the flabby folds of inanition, or puffs up in the shapeless tumidity of œdema. Who has not had the sad experience of seeing a baby one day as plump and rotund as a study of Murillo, and the next with the sunken eye and hollow cheek of cholera infantum? And yet will any one claim that in that brief interval there has been any material loss of adipose tissue? Is it not simply that the fluids have been drained away, especially from the surface, that the capillaries are empty, and the superficial vessels are in a state of collapse? Hence I hold that in these cases of impaired nutrition, hydrated blood, degenerated tissue and depressed nerve force, our

[1] Read in the Section on Practice of Medicine, Materia Medica and Physiology at the Thirty-sixth Annual Meeting of the American Medical Association.

[1] Burdon-Sanderson says: "The capillary is not a dead conduit, but a tube of living protoplasm." Kirke says: "The capillaries must be looked upon not as mere passive channels for the passage of blood, but as possessing endowments of their own (vital capillary force), in relation to the circulation. The capillary wall is actively living and contractile; and there is no reason to doubt that, as such, it must have an important influence in connection with the blood current."

object should not be to overload the economy with carbon and lay on layer after layer of adipose tissue, but to create a demand in the tissues farthest from the centre for healthy blood, by breaking down and forcing out the dead-alive cells with their accumulation of morbid deposit, and sending them to the enunctories to be excreted, and, as this demand begins to be felt, supplying it cautiously—principally with nitrogenous elements—and not in excess of the ability of the assimilating organs to manage it.

In this way we shall build up the system, atom by atom, cell by cell, each tissue appropriating its peculiar aliment, and no one being nourished at the expense of another. In this way we may hope to develop a gain in weight, and a plumpness, which will outlast the hot-house period of enforced rest, since it will depend not upon a superficial layer of poorly condensed oil, but upon a capacity of all the tissues to retain a sufficient amount of blood in their vessels, and of lymph in their intervascular and areolar spaces, as well as upon an increase in both the number and the solidity of the cells composing them. The particular tissue in which we should look for greatest gain in this respect is the muscular; first, because it has usually been the most neglected in these cases, and suffered the most serious degeneration, and secondly, because it is the most intimately connected with the blood-making process. I do not know that we should go very far wrong if we assigned this process in part as one of the functions of muscle. Constituting as it does, with its appurtenances, almost one-third of the entire man, and being, moreover, extremely vascular, it is not too much to suppose that under ordinary conditions it contains one-half of the blood of the tissues, and under conditions of great activity, considerably more. It is the grand blood-reservoir of the system, far surpassing the spleen in this character, and capable of infinitely greater expansion, under the necessity of great stress. But it may be that it is more than a reservoir, and that with its frequent force-pump action of contraction and relaxation, it is inviting the circulating fluid into itself not simply for the selfish use of self-nutrition, but to prepare it for its purposes as a nutrient for other tissues. Certainly, if each tissue, in appropriating to itself the elements necessary for its own growth, is an excretory organ in its relation to all other tissues, as has been sagaciously observed, then the muscular tissue, from its immense preponderation of bulk and weight over all the other organs and viscera (excepting the bones), must be admitted to have most important uses, at least in eliminating materials which would be noxious to other portions of the economy. And daily experience combines with the results of scientific analysis to indicate this as one of the most important results of exercise. The following history will serve to illustrate my meaning:

In the winter of 1867 I was requested by Mr. J. S. to visit his daughter, living in one of the suburbs of Philadelphia. She had been confined to the bed for seven years, and he described her condition as so desperate that I felt sure that nothing could be accomplished in her case without the most assiduous personal attention. As it seemed impossible to bestow this at such a distance, and as I knew that she was in the hands of skilful practitioners, I represented to her father the difficulties of the situation, and respectfully declined to see her. The following day, however, he returned armed with so urgent a request from the attending physicians that I had no longer a right to resist his earnest solicitations. I accordingly saw her in consultation with the family physician and the consultant, on the 18th of December.

The following is a brief *résumé* of her history up to that time: Her parents, both of them living, were of decidedly nervous temperament. As an infant she was so feeble and ill-nourished that it was not supposed she would live to adult life. As a child she continued to be delicate, able to undergo but little fatigue, and having a poor and irregular appetite. Menstruation was established at the age of fifteen, and a year later her debility began to increase rapidly, being especially marked in the morning, and it was noticed that her face and her feet were swollen on awaking. Pain in the back, extending through to the chest and epigastrium, now made its appearance. This was much increased by the pressure of her clothing. Blisters and other counter-irritants gave temporary relief. This condition continued with variations for four or five years, gradually becoming more serious. Her temper became very irritable; motion caused great pain, and locomotion was in consequence almost entirely given up for a time. There was then a period of slight improvement, but the pain frequently returned, usually ushered in by febrile symptoms. She suffered from almost constant nausea and frequent attacks of water-brash. Menstruation was very painful. At first too frequent, it subsequently became the reverse, and was supplemented by vomiting of blood and discharge of blood from the mouth, apparently from the gums or mucous membrane. Finally it ceased altogether, and symptoms of grave nervous derangement supervened.

She became subject to violent hystero-cataleptiform seizures, characterized by strong opisthotonos, rigid contraction of the extremities, and facial contortions. These alternated with fits of hysterical mania, during one of which she attempted suicide by throwing herself from a window. Her screams during these attacks could be heard for a long distance from the house. The seizures were almost invariably followed by sick headache, with very violent vomiting. Such was the state of things during the years 1861 and 1862. During the latter part of this period she took to her bed, and had not been able to walk since. During the summer of 1867 she was taken to Atlantic City, on a bed in a baggage car. While there persistent vomiting set in, at first recurring every ten or fifteen minutes, but gradually diminishing in frequency. This continued incessantly for four months, at the end of which time she had become excessively emaciated and so weak as to be unable to raise her eye-lids. Her eyes were now very sensitive to the light. As the irritability of the stomach diminished the irritation appeared to be transferred to the lower extremities, which began to draw up toward the body, while at the same time

there was a sensation as of red-hot needles piercing the feet. When the contractions became complete these sensations ceased, and the soles of the feet became at once anæsthetic and hyperalgesic. She compared them to "sensitive sponges." This condition had existed for about two months when I first saw her. My entrance into the room was greeted by a piercing shriek, and this was the only notice that the patient took of me during the entire visit, save that I could detect a slight muscular tremor in obedience to my command that she should move her hand as I held it in my own. She was emaciated to the last degree. Her face was pallid and her lips bloodless. The gums were spongy and bled at the slightest touch. Her lower lip was drawn under the teeth of the upper jaw, and forced against them with a rapid motion. Her hair was in a solid mat at the back of her head, it having been impossible to comb it for months. The hands were flexed on the wrists, the thumbs strongly adducted across the palms and the fingers clinched over them. The decubitus was almost dorsal for the head and shoulders, but the lower part of the body was twisted to the left, so that the position of the legs was lateral. The lower extremities were in a state of complete contraction, the knees almost touching the chin, the heels close to the buttocks, the feet in a line with the legs, and the toes bent under the sole, until the long toe-nails were imbedding themselves in the flesh. The legs were also, much of the time, in active spasmodic motion, so that as they lay upon their sides, notwithstanding the fact that they rested upon a water cushion, the external malleolus of the left and the internal malleolus of the right had become excoriated by the friction, and presented deep ulcers. The entire limbs were so painful to the touch that it was necessary to support the bed clothes on a hoop. There was also excessive pain in the abdomen and stomach.

To relieve this suffering she was taking enemata of large doses of morphia (I have mislaid my memorandum of the amount and do not venture to state it from memory), every two hours. She was unable to turn herself in bed and could not bear to be touched, so that when occasion required she was turned on a sheet. For a long time she had evacuated the bowels only once a week, and that with the aid of an enema, laxatives having lost all effect. This operation was always followed by severe vomiting and great prostration. She had frequent distressing spells of hiccough and of protracted yawning. Menstruation had been completely suspended for four or five years, but she was still conscious of a sensation of being excessively swollen at the menstrual epoch. There was a very considerable right lateral curvature of the spine. She was living principally on stimulants (champagne, brandy, and Hoffman's anodyne), taking very little in the way of food.

In the consultation following my examination, it was agreed that the contractions and spasms were of reflex rather than of spinal origin, probably having their source in the reproductive organs; that the spinal curvature was of secondary importance, although not to be overlooked as an element in the case; and that the only hope was in restoring the capillary circulation in the extremities, stimulating tissue-metamorphosis, and thus exciting a demand on the part of the system for food, which would then be appropriated and make healthy blood; for it was evident that she was anæmic to the last degree. The case was kindly consigned to my entire charge.

I at once instituted a course of massage and Swedish movements. It was at first addressed to the hands and feet alone. At the first visit the hands only were treated. Kneading was begun at the tips of the fingers, and extended up to the wrist. Passive movements were then made of the terminal phalanges, and successively of the others in turn; then of the entire fingers, and finally of the hand on the wrist. When an evidence of slight improvement in the circulation was given by increased warmth, more vivid coloration, and diminished rigidity of the joints, the patient was ordered to make slight voluntary movements of the fingers against slight resistance on the part of the masseuse, and in her turn to oppose all the resistance of which she was capable to the movements of the former. She was of course obstinate at first, and obeyed most unwillingly, but the constantly repeated injunctions of the attendant, aided by the force of her will, and the sense of control imparted by the movement of her muscles without the consent of her own volition, triumphed, and after a few sittings all opposition was overcome. After she had become somewhat accustomed to the mode of making the hand movements, the same course was begun with the feet. These were very cold, and livid up to the ankles, without the slightest indication of circulation. The ends of the toes were first treated. Considerable force was needed to overcome their contraction, and at first they returned at once to their flexed position. But each application found them less rigid, and the surface of the feet less sensitive. After half a dozen séances, I felt convinced that I could see a little evidence of a return of the blood to the superficial capillaries, and considered myself justified in announcing to her father that her improvement had begun.

I may remark just here, that in these cases of enfeebled muscles and perverse will, it is important in administering the acto-passive movements, first, never to direct a motion to be made to which there is any insuperable mechanical obstacle, and secondly, always to insist on the motion being made to the full extent indicated. If the patient voluntarily resists, that resistance must be abolutely overcome. Nothing so much aids in subjecting the will of the patient to that of the medical adviser and his assistants as a consciousness of powerlessness in his and their hands. If, on the other hand, the patient honestly strives to make the required motion, and has not sufficient strength to accomplish it fully, the masseur must aid in its completion. A skilled operator will do this so naturally and gently that the patient will not suspect that aid is being given, and, pleased with the success of his effort, will thus be stimulated to repeat it with increased vigor. This is a pious fraud, perhaps, but certainly one which may be regarded with lenience.

One of my first aims in the management of this case was to diminish the amount of morphia and of stimulus which she was taking; for I felt sure that the former was drying up all the secretions and paralyzing her vegetative life, while the latter substituted more nutritious food and destroyed the appetite for it. The former was the more difficult to control, inasmuch as she invariably insisted on having the dose weighed out before her eyes, and the recurrence of pain as the influence of the drug wore off made her always alert to call for it at the end of the two hours. I endeavored to combat its effects by the administration of atropia, but here I was foiled by a most extraordinary sensitiveness to the poisonous action of that drug. The first dose of 1–120 gr. produced truly alarming effects, and when, after reducing it to the 1–480 gr., I still found dilated pupils, dimness of vision, and scarlatinal rash, I concluded that it was not wise to attempt to overcome the intense dread of its effects which had taken possession of her. I am obliged to confess that in order to accomplish my end, I found it necessary to tamper with the scales. The amount was thus gradually reduced, at first without her knowledge, subsequently, when she became more amenable to reason, with her coöperation, until the use of the drug was entirely abandoned, and she came to look upon it with such horror that at her urgent request I abstained from ever again prescribing it for her.

The treatment was continued somewhat irregularly for two months, when it was unavoidably interrupted by the serious illness of another member of the family, and was not resumed until the end of the following September, when I insisted on her being removed to the city in order that it might be carried out more effectively in all its details. I now placed her in charge of one of my most competent masseuses as her nurse and attendant, and prescribed all the minutest details of her daily life, requiring everything to be done by the watch. Under this regime her improvement was steady, though not rapid. Her muscles gradually increased in volume, and her nerves in endurance. She was able to bear both light and noise better, and the painful sensitiveness of the feet diminished.

By the month of February, the contractions, which it will be remembered had held her shut up almost like a closed knife, had so far yielded that slight pressure would bring the feet to a right angle with the legs, and the flexion of the knees was so much reduced that I could apply a pair of steel knee-braces. These I had put on every day and worn for a certain length of time, and as soon as she became sufficiently accustomed to the pressure, I placed her daily in the standing position, with her hands on my shoulders and a broad girth passed around her body and my own at the level of the hips, in order to maintain her erect with as little effort on her part as possible. These attempts were at first followed by hystero-cataleptic attacks, convulsions, unconsciousness, rigidity or hysterical screaming. But these gradually wore off as the efforts were persisted in and the contractions relaxed.

The following summer she had sufficiently recovered to be able to go to the mountains, and while there began to walk with the aid of her attendant, without the support of the knee-braces. Below is the schedule which I placed in the hands of her nurse on leaving, to show the manner in which her day was portioned out. This was adhered to faithfully unless she was suffering in some unusual manner.

DAILY PROGRAMME FOR MISS ——.

Breakfast	8:30	to	9:00.
Rest	9:00	"	9:30.
Toilet	9:30	"	10:15.
Rest	10:15	"	10:45.
Bath	10:45	"	11:00.
Rest	11:00	"	11:30.
Dressing	11:30	"	12:00.
Rest; Lunch	12:00	"	1:00.
Movements	1:00	"	2:00.
Rest	2:00	"	4:00.
Dinner	4:00	"	5:00.
Ride, visits, etc	5:00	"	7:00.
Tea	7:00	"	7:30.
Reading and amusement	7:30	"	9:30.
Retiring	9:30	"	10:00.
Taps	10:00.		

The toilet after breakfast was that of the bowels, a daily enema being necessary. This she had been in the habit of receiving on awakening in the morning, before taking food. But considering that this was unnecessarily exhausting, I induced her to change the hour, which she did with great reluctance. The bath included sitting in a shallow bath, slightly cool, and the use of a vaginal syringe. The bath was at a temperature of 112° F. on entering, and gradually cooled down to 80° F. before leaving it, and was to be continued not longer than 15 nor less than 10 minutes. Under the influence of abdominal massage, and movements of flexion and adduction of the thighs, her menses had returned during the spring, after a period of total cessation of about six years. In order to stimulate this function and relieve dysmenorrhœa, as well as to calm nervous excitement and improve the circulation in the lower extremities, I used the spinal ice-bag to the lumbar spine and upper part of the sacrum once every day for half an hour, ordinarily and twice a day before and during the menstrual epoch. I believe that this simple method of treatment for such conditions is not sufficiently appreciated as it should be by the profession.

As she was now able to be for a considerable part of the time in the upright posture, the lateral curvature of the spine, of which mention has been made, became a factor of considerable importance in her sum total of disabilities. I therefore, in November, soon after her return from the mountains, applied an instrument with a strong ratchet movement to give support to the spine, and overcome the deformity as far as might be. At this time she came to stay for the winter in my private hospital, in order to avail herself of the use of the machinery of my Treatment Hall, designed especially for giving appropriate exercises in this form of curvature. She now improved rapidly in walking, and was soon able to take short walks out of doors.

It is unnecessary to detail the case further. Side issues were met by appropriate remedies as they pre

sented themselves. Hæmorrhages, endometritis, uterine malposition, etc., needed much attention; but the general outcome was restoration to the duties of life, which she has since discharged with great faithfulness, and to the pleasures of society, which her naturally brilliant mind fitted her to adorn.

Now what was the efficient agent in this case in breaking up the chain of morbid processes, in promoting tissue-metamorphosis, in stimulating nutrition and consequently in making blood? Not *rest*, certainly, for that she had been taking *ad nauseum* for months and years before I saw her. Not *over-feeding*, for I was never very urgent that she should take much more food than her appetite called for, and that was at no time large. No; it was simply so acting upon the fluids in the blood-vessels, the lymphatics, and the areolar lymph-spaces by purely mechanical means as, first, to hasten the dislodgement of effete cell-elements, and their absorption into the general circulation, thus creating a necessity on the part of the ultimate cells of the tissues operated on for more food, that is to say, appetite; next, to stimulate the capillaries to more vigorous action to supply this felt want of the tissues; then to arouse the muscular tissue to the performance of its double function of accelerating the blood and lymph currents, so necessary to wash away the detritus, and of carrying on that decomposition and recomposition of the blood which is essential to make it a vitalizing agent for glandular tissues; and finally to evoke the activity and restore the equilibrium of these glands themselves secretory and excretory, superficial and deep-seated.

But while there is room to doubt whether a rapid increase of fat is ever an advantage, and whether any addition to the adipose element of the individual beyond his natural percentage of this tissue as compared with others, is not a positive injury, there can be no question that its excessive accumulation, whether all over the surface, in the abdominal walls, or in the omentum, is a calamity, and a grave one. Fat being a non-conductor, prevents, so I have thought, the internal fires from radiating their warmth to the integument, wherein reside the sensations of heat and cold. It is undoubtedly an admirable arrangement for the bear, protected on the one hand by his winter surtout of fur, and confined to the unchanging atmosphere of his close cave, and on the other entirely oblivious in his profound slumber, of all external changes and superficial sensations, to have his fires thus banked up and slowly fed for months together, and thus maintain the temperature of his interior somewhat at the expense of the surface, but the plan works by no means so well in the non-hibernating human being. In my observation it is not true that fat people suffer less from cold than thin people. On the contrary, it has seemed to me that the surface of the skin overlying large deposits of adipose tissue is apt to be both objectively cool, imparting less sense of warmth to the touch, and subjectively chilly, the individual requiring more clothing to make her comfortable than another who is less liberally covered by nature. That, on the other hand, the obese suffer more from heat than their thin neighbors, no one will for a moment deny. Aëration of the surface does not appear to take place so readily with them; radiation of body heat is slower, respiration is more laborious, the heart is compelled to work harder in order to distribute the blood over so great an increase of area, locomotion is greatly impeded, and the whole expression is one of anxiety.

"Oh! that this too, too solid flesh would melt!"

is a sentiment often to be read in the faces of such sufferers. To this class belongs the following case:

On June 23, 1875, I was waited upon by a lady, residing a few miles out of Philadelphia, with the request that I would call and see her daughter, supposed to be suffering from a spinal affection which rendered her quite helpless. She described her as able to walk with great difficulty, partly from loss of power in the legs and partly from her great weight although she was only seventeen years old. Once a day, supported by two persons, she was helped down stairs, and then wheeled out on to the piazza, when the weather would permit, and there sat to get the air. This was the only exercise she was capable of taking. She suffered much from pain in the back. Menstruation was not very painful, but profuse, and there was considerable leucorrhœa. I at once informed her mother that my belief was that the true seat of her daughter's disease was the womb, and not the spine, and that I could only consent to call on her with the understanding that I was to be allowed to make a complete examination of that organ, both digital and with the speculum. This permission being somewhat reluctantly granted, I saw the patient on the afternoon of the same day.

I found a leukophlegmatic girl, of large frame, decidedly above the average height, and enormously fat. Her arm was larger around than the thigh of an ordinary adult woman, and the accumulation of fat upon the abdomen was immense. Some idea of her size may be formed from the fact that when, some months later, I walked with her in the streets of Philadelphia, her weight having been then greatly reduced, she was an object of remark to all passers-by. The spinal muscles were quite unequal to the task of holding her erect in sitting, and were sensitive in consequence of the great strain which such efforts put upon them, but there was no spinal rigidity or other evidence of spinal disease, beyond a slight lateral curvature, which I considered of no account in estimating her case. There was no paresis and no contraction of the lower extremities; simply excessive debility. She lost breath on the slightest exertion, and the heart's action was weak and labored. She was pallid, the lips were pale, and the muscles were soft and flabby.

The vaginal examination disclosed a womb of about double the natural size, retroverted and partially prolapsed, and with a very patulous linear os of about an inch in length, from which exuded freely a thick albuminous discharge. There was very little tenderness of the uterus on pressure, and little sensitiveness on the introduction of the sound, but considerable ovarian tenderness. I at once instituted a course of local treatment, the main features of which were the application of fuming nitric acid to the fundus,

reposition by the sound, and support of the replaced organ by a Hodge's lever pessary, which was eventually entirely successful in restoring the organ to a normal condition. But our concern now is with the disposal of the immense mass of hydro-carbon which was evidently an insuperable obstacle to her ever again resuming her old habits of activity. I placed her, of course, on a restricted diet, limiting her closely in sugars, starches and fats, but endeavoring to allow her sufficient variety not to deprive eating of all zest. I also gave her the following prescription, which she took faithfully, with occasional intervals. It will be observed that the amount of liquor potassæ given was very large. This could only be administered by diluting it generously.

℞. Ext. fuci vesiculosi fluid.
Liq. potassæ.....aa ʒij.
Aq. calcis..... ℥xij. M.
Sig. A tablespoonful,in a tumbler of water thrice daily, gradually increased to two tablespoonfuls.

But what I most relied on to effect the absorption of the fat was the daily application of massage; and in prescribing the mode in which it was to be given I was guided by the following principles: The first object was to stimulate the great emunctories, and in this way provide an outlet for the fatty detritus which I proposed to send on to them later. First among these I considered the liver and the intestinal epithelium; the former, not indeed so much for the amount of excrementitious matter which it is capable of throwing out of the system as for the usefulness of its secretion as a scavenger in sweeping away the *débris* of epithelial desquamation, uncovering the outlets of the excretory ducts and stimulating the renewal of their cells. Vigorous massage of the abdomen was therefore the first indication. To have begun with movements of the extremities, as in the previous case, would have been to force a turbulent and muddy stream onwards to a reservoir with insufficient outlets, and would only have resulted in damming up the effete current, damaging the sluice gates and leaving morbid deposits in the glands of the abdomen. But by stimulating the nerve centres of the abdominal cavity, by means of the reflex and electrical influences of rapid superficial massage, and following this up with deep and forcible kneading, the excretions of the intestinal mucous membrane were first augmented, and the peristaltic action was then accelerated to carry them off.

Strong percussion over the liver with the full palm of the hand, known as *liver-clapping*, then followed, for the purpose at once of increasing the activity of the hepatic secretion and of mechanically hurrying the bile through the gall-duct and out into the intestinal sewer. Then, in order to bring the re-inforcing power of the spinal chord to the aid of the splanchnic and sympathetic nerves, rapid percussion of the spine with the last phalanges of the fingers was resorted to, beginning at the base of the brain and continuing down to the sacrum; giving especial attention, however, to the lower half of the dorsal column. This was followed by a stroking of the spine and back generally, in order to soothe any irritation of the general nervous system that might have been produced, and the prescription was concluded by a few vigorous duplicated flexions and extensions of the thighs, the patient and the masseuse alternately moving and resisting, with the view of compelling the abdominal muscles to contract strongly; and also, by the action of the psoas and iliacus muscles, to stimulate the pelvic circulation and overcome the atony of the bowels.

As it was not convenient for her to be moved into the city at that time, her maid, a very intelligent young woman, was sent into my treatment hall to take a few lessons of my manipulator, and as I visited the patient once or twice a week I was enabled to superintend the massage, and correct her defects of manipulation. Although her method was crude, and far from satisfactory, it was so far effective that in six months, that is, from the commencement of the treatment, the patient had lost probably one third of her weight and was able to walk with some comfort.

Anxious, however, for more rapid improvement she now moved into the city, and after a week of daily treatment by an experienced masseuse, was able to walk with assistance from her boarding place to the treatment hall, a distance of one square, or a twelfth of a mile. By means of apparatus I was then able to give her more vigorous movements than any she had yet taken, especially rapid and powerful vibrations of the extremities, abdomen and liver. Her great weight, however, being still an impediment to locomotion, and the fatigue which it caused, a drain on her nerve-force, I thought it wise to relieve the spinal muscles from strain by affording them mechanical support. The form which appeared to me most suitable to her case was a Banning's brace, with an extra large abdominal supporter. At the same time I substituted for the Hodge pessary the retro-uterine prop of the Banning brace, having its point of support external to the body from the abdominal plate. This combined support at once enabled her to move with greater ease and freedom and to remain longer in the erect posture. Her spirits, which had been much depressed, now began to rise, and her color gradually became more vivid and natural.

The Movement Cure was continued for three months, when she returned to her home, lightened in heart as well as body, and able to walk half a mile without fatigue. I continued to see her at long intervals, in order to maintain the adjustment of her mechanical appliances, and found her weight constantly diminishing and her strength correspondingly increasing. There were occasional drawbacks to the latter from a prolapsus ani with hæmorrhages; which, however, yielded to astringents and appropriate support in treatment.

Some time during the following spring I was surprised to have her come into my office with the announcement that she had walked in from her home in the country, a distance of six miles. In fact so active was she that I was obliged to confiscate her pedometer in order to impress upon her the fact that there was a limit to her endurance, and

that she was in danger of bringing on her old troubles again. A walk of ten miles she regarded as a very moderate effort. Her figure soon became as remarkable for its lightness and grace as it had before been for its shapeless and unwieldly immensity.

COLO-PROCTITIS TREATED BY HOT WATER DOUCHE AND DILATATION OR DIVISION OF THE SPHINCTERS ANI.[1]

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In presenting the following cases intended to illustrate the special merit claimed for the plan of treatment recommended, I fully recognize the importance of confining myself to that particular form of disease which the clinical history of each case will demonstrate, and to differentiate it from those more formidable and graver affections such as deep-seated corroding ulcers, the various forms of stricture, and varieties of cancer which are met with in rectal diseases. Whilst the disease under consideration is usually of long standing, or chronic in its character, it is a pure non-malignant inflammation, confining itself almost entirely to the mucous or sub-mucous tissues, and resulting in some cases in small superficial necrobiotic ulcerations found just within the external sphincters; that such cases are often mistaken for simple dysentery and unwisely treated by injudicious medication as such, I have no doubt.

Case 1.—In the fall of 1875 I was requested to take charge of a man about 30 years of age, affected, as he stated, with chronic diarrhœa. He informed me that he had been suffering with the disease for more than two years, that prior to the appearance of this trouble he had enjoyed excellent health, and for the last fifteen years been occupied on board a small fishing boat plying between Washington and the Chesapeake bay, engaged in the oyster trade. His family record showed no taint of strumous or tubercular disease. Upon a careful examination of this man, I found that his disease consisted in a chronic catarrh of the large intestine, extending into and embracing a greater portion of the mucous lining of the rectum. I became satisfied, from a careful manipulation, that the disease did not embrace the ascending colon, but seemed to commence in its transverse portion and proceed downward. At the time of my first seeing him there was much tenderness along the bowel, almost constant pain, always greatly augmented by defecation, usually passing of large quantities of mucus in long bands, sometimes tinged with blood, at other times there would be muco-sanguineous stools mixed with small quantities of fæcal matter. There had been frequent discharges of clotted blood at various times, exhibiting the appearance of pure hæmorrhage. The history given me of the treatment which had been pursued by the different medical gentlemen whom he had consulted, embraced most of the usual remedies employed in chronic diarrhœa and dysentery. It is not necessary to enumerate them. I directed a suspension of all medication by the mouth, confined the man exclusively to hot milk diet, and ordered an enema consisting of four ounces of strong decoction of ipecacuanha root, and twenty drops of tincture opii, to be thrown up the bowel as hot as possible, and repeated every eight hours; to be kept in bed and allowed nothing else but the hot milk as nourishment. The enemata not to be used after midnight until eight o'clock the following morning. This practice was continued for two days, when the tincture opii was reduced one-half, ten drops being employed every eight hours instead of twenty.

The patient seemed to improve manifestly from the second day after he was placed under this treatment, and continued to do so until the sixth day, when he had a return of hæmorrhage, discharging about four ounces of clotted blood. Suspecting the presence of ulcers within the rectum, a careful exploration was made by means of the speculum, but no ulcer discovered; I found, however, a proliferation, or thickening of the mucous membrane just within the sphincters, and extending for two inches or more up within the bowel. This morbid growth consisted of exuberant villosities, exceedingly vascular and soft, and feeling to the touch like thick velvet. A very close inspection failed to disclose the presence of fissures. I recollected having treated a similar case, which came under my care many years previously, by the application of nitrate of silver first, and subsequently of nitric acid, which, however, had not resulted in a cure. I determined, therefore, to try the plan of dilating the sphincter freely by pressure with the thumbs and tearing up and squeezing out the blood of the villous vegetations, and thus destroy them by cutting off the abnormal blood supply, at the same time continuing to use the hot water injections, consisting now of the solution of boracic acid, instead of the decoction of ipecac, adding the tincture opii only to the one used at bed hour, in the quantity of twenty-five drops. Injections were ordered to be administered every three hours during the day up to twelve at night. Continuing this plan of treatment and confining my patient to the hot milk diet, with an occasional slice of stale bread, I had the satisfaction of discharging him perfectly cured at the end of fifteen days.

Case 2.—Two years after the above case, in the summer of 1877, a married lady, the mother of three children, came under my care suffering with severe proctitis associated with several small but exceedingly painful fissures. This lady had suffered for many months with attacks of dysentery, which had been temporarily relieved by medical treatment, but invariably returned without any immediate exciting cause that she could discover. Latterly she had experienced several hæmorrhages from the rectum, and found that all efforts at defecation were attended with such exquisite pain that it was almost impossible for her to accomplish that act. The pain had within a few days become persistent and unceasing, rendering sleep impossible, and her existence miserable in the extreme. The dejections had for several months

[1]Read in the Section on Surgery at the Thirty-Sixth Annual Meeting of the American Medical Association.

prior to this condition of affairs consisted largely of mucus, sometimes, but not always, tinged with blood. It was impossible, in consequence of the extreme tenderness of the parts, to make a speculum examination, or even introduce my finger without first placing her under the influence of some anæsthetic; so I determined to etherize her the following day, and divide the external sphincter at once, relying upon the hot water injections for subsequent treatment.

The operation was performed on the following day, as determined upon, the knife being first used, followed by stretching with the thumbs, and a thorough dilatation obtained, a half pint of hot water being thrown into the bowels every four hours during the day, and kept up for two days. The patient expressed herself as greatly relieved after the operation, and enjoyed, for the first time for several nights, a refreshing sleep. She was also placed upon hot milk diet with stale bread for a week, and the hot water douches continued every six hours for the same period. At the end of eight days she was discharged cured. I had an opportunity of seeing this lady quite frequently for many years subsequently, and enjoyed the satisfaction of knowing that my success in this case had been complete.

Case 3.—Four years ago I was consulted by a young lady twenty years of age, of delicate appearance, who informed me that she had been subject for six years to habitual constipation, with alternations of diarrhœa. That two years before she had submitted to an operation for hæmorrhoids, from which she had suffered for more than a year previously, and experienced occasional losses of blood. Although the hæmorrhoids had been removed, greatly to her disappointment she still had frequent hæmorrhages from the bowels, and at all times pain and discharges of large quantities of mucus, frequent attacks of diarrhœa, but generally constipated. A careful examination of this case disclosed a contracted anus, sphincters firmly closed and resisting the introduction of the finger, no appearance or condition, however, indicating malignant disease, but presenting what I shall call a *rectismus*. The lining membrane of the rectum was found thickened and villous, and exceedingly vascular; but not very sensitive beyond the sphincters. External manipulation over the abdomen produced some pain along the descending colon. This lady was required to go to bed and to commence at once the hot water douches; half pint every four hours, every alternate one containing two scruples of boracic acid and ten minims of tincture opii.

On the third day after confining her to bed, I placed her under the effects of chloroform and operated by dilating the sphincters, entirely paralyzing, for the time, that muscle. This was immediately followed by the application of nitric acid diluted one-half, to the inner surface of the rectum some distance beyond the sphincters. The subsequent treatment consisted simply of the milk diet, hot douches with solution of boracic acid, anodynes for the first three nights, and internal administration of lime water, half an ounce three times a day in the milk. At the expiration of two weeks she had so far recovered as to be able to leave her house, and experienced no difficulty or pain in the evacuation of the bowels. This patient continued to enjoy entire freedom from any trouble, except more or less torpor of the bowels, for nearly two years, when I was again consulted for a return of the hæmorrhage of the rectum following defecation, and attended with pain. An examination with the speculum showed the presence of three ragged ulcers about the size of a split pea, located just within the sphincter. These were speedily destroyed, and the parts healed in a few days by three applications of pure nitric acid. She has now been under my observation for eighteen months, and has had no return of the diarrhœa, or other evidence of intestina disease.

Case 4.—In the latter part of May, 1883, an elderly lady, sixty years of age, the mother of several grown children, stout and healthy in appearance, consulted me for chronic intestinal catarrh; with which she reported she had been suffering for more than a year. I saw her occasionally during the month of June, and directed her to use injections of hot water and be placed under a rigid system of diet, using but little medicine, as I was told that she had been pretty thoroughly medicated before consulting me. About the 20th of June, she reported that she had suffered latterly with severe pains about the rectum during defecation, and at all times more or less uneasiness at that point. This had been steadily increasing, and had finally become exceedingly distressing to her, and been attended with discharges of blood. An exploration of the anus and rectum disclosed the presence of an oblong ulcer just within the margin of the anus, and extending for one inch up in the bowel, about one-third of an inch wide and four or five lines deep, with smooth edges and base. The surrounding tissues were soft and natural to the touch and in appearance, except the usual velvety feeling of the mucous membrane above the sphincter. I was greatly relieved to find the condition of things that dispelled all apprehension of malignant disease, which I thought the clinical history of the case with the age of the patient, to some extent warranted. The free application of nitric acid was made to the ulcer, hot water douches continued through the day, and a soft anodyne suppository at night was used. Finding at the end of ten days that the use of caustics, anodynes and astringent lotions and suppositories, in conjunction with the foregoing treatment, had utterly failed, I resolved to divide the sphincters through the bottom of the ulcer, practice dilatation, and continue irrigation of the bowels with hot boracic acid lotion.

On the 6th of July, assisted by Dr. Acker, of this city, who administered chloroform, I made a partial division of the sphincter with a bistoury, and completed the dilatation by pressure with the two thumbs. A large pledget of patent lint saturated with carbolized oil, was inserted and allowed to remain for eighteen hours. The hæmorrhage was quite insignificant, but a large quantity of almost pure mucus was thrown off by the bowels. A full anodyne was ordered for the night, and the patient put upon hot milk as a diet. On the day following the lint was re-

moved, and an application of an unguent, composed of sulphate of zinc, morphine and vaseline was made. In this, as in all the foregoing cases operated upon, the bowels were kept inactive by the use of opiates for four days.

This patient was left in charge of Dr. Acker a few days after the operation, and not seen by me again for four weeks. She continued, however, to use an abstemious diet, and to persist with the hot douche for some weeks. On my return to the city she had so far improved as to be able to walk out without inconvenience, and suffered no pain in evacuating the bowels; had a good appetite, and pronounced herself as almost entirely cured. She has since that date been under my observation, and seems perfectly well; having had no return of the diarrhœa, or other indications of her former disease.

Case 5.—In October last, I was requested to see a gentleman 52 years of age, a lawyer by profession, of sedentary pursuits during the last fifteen years of his life; regular and temperate in his habits. He informed me that he had for several years, suffered from a slight bronchitis, attended with a troublesome cough, but no expectoration. That eighteen months before, he began to experience some discomfort about the rectum after defecation, which had gone on increasing to actual pain; and that for the past six months there had been an occasional discharge of blood after evacuations of the bowels. Contemporaneously with this feeling of malaise, he had been attacked with diarrhœa which had continued at intervals up to the time of his consulting me. He had also undergone during this period a regular system of medication by two different physicians, who regarded his case as a simple catarrh of the large intestine; but that they had failed to afford him any permanent relief. Upon making a careful examination of the rectum, I found a superficial fistula about one and one-half inches deep, two small fissures at the anal orifice, and the lining membrane of the rectum congested and thickened. A laxative of sulphur and Rochelle salts was administered, and instructions given that he should use hot water douches every four hours daily. I explained the necessity to him of operating for the fistula, with the probability of an additional operation for dilating the sphincters. He determined to try for a week the plan of irrigating with hot water alone, and abandon all internal remedies. At the end of ten days I received a note requesting me to call and see him. He had experienced much relief from the hot douches during the intervals of intestinal quiet, but at each evacuation the same pain was produced, his diarrhœa also had continued to recur, and he had finally concluded to submit to any plan of treatment which I might determine to pursue.

On the day following, assisted by Dr. Acker, who administered a mixture of chloroform and ether, the anæsthetic I usually prefer, I first divided the superficial fistula which extended just within the margin of the anus and dilated freely and forcibly the sphincters with the thumbs, packing the rectum for a few inches with a tent made of fine old linen, and well lubricated with vaseline. An opiate was directed to be given four hours after the effects of the ether had worn off. The next day I removed the pledget of linen and used the hot douche, repeating the opiate at night and directing a very light diet. On the third day a laxative was given, which operated without occasioning much pain. No further treatment was praticed in this case than the continued use of the hot water irrigation and a moderate diet. At the end of eight days he was sufficiently well to resume his ordinary vocations, and pass from under my observation till the following January, when I met him on the street and received the gratifying intelligence that he had increased ten pounds in weight, and had experienced no return whatever or any symptom of his old trouble.

Recognizing the important part played as etiological factors in the production of this disease by the muscular adjuncts of the rectum, and as one of the chief obstacles to be encountered in accomplishing its cure; it is important that we should bear in mind the anatomical relations of this organ to those muscles. The extensive attachments of the levatores ani with its fibres converging to a central raphe encircling the bowel, and exercising a controlling power over its various motions, its contractions and its dilatations, and to a certain extent diminishing or increasing thereby the vascular supply of its coats; the external and internal sphincters presiding to a large extent over the act of defecation, maintaining under certain conditions by a tonic or spasmodic contraction of their muscular fibres, an abnormal blood supply to the bowel above, resulting in proliferation of tissue and necrotic areas of mucous membrane; the rich supply of nerves and blood-vessels, and especially the particular distribution of rectal veins, constitute a vast field for investigation by the pathologist as well as an interesting and useful subject for observation and instruction to the general practioner.

URETHRAL CALCULI.[1]

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The clinical pictures presented by foreign bodies in the male urethra are so varied that every case is likely to display special features of interest which will vary according to the form, seat of lodgment, and source of the foreign body. In most cases this is a calculus which has descended from the bladder or kidneys, or in rarer cases, such as prostatic disease or stricture, has developed in loco. In the vast majority of cases, the stone is single. In the following case, for the "previous history" of which I am indebted to Dr. J. A. Brown, of Germantown, two stones were found, which varied as much in size as in the symptoms to which they gave rise.

J. L., æt. 37, farmer, had always enjoyed good health until sixteen years ago, when he suddenly suffered from severe pain in the urethra, associated with hæmorrhage and retention of urine, for the relief of which the catheter was used. After continuing for a few weeks these symptoms subsided, and the patient

[1]Read before the Ohio State Medical Society, June 4, 1885.

was enabled to return to his work. Since this attack he has always been in good health except on four or five occasions, when a condition such as that just described recurred. In the middle of January a similar attack supervened, for the relief of which the patient himself resorted to a soft catheter. Only because febrile complications and rigors manifested themselves was Dr. Brown sent for. He recognized a swelling of the size of an orange just behind the peno-scrotal angle, and when he introduced a silver catheter into the urethra a calculus was distinctly recognized. All efforts to cause the expulsion of the foreign body were futile; attempts to extract it were equally unsuccessful. It was therefore pushed backwards towards the bladder.

I saw the patient for the first time on the 11th of February. His temperature in the evening was 104°, and his pulse 122°. He suffered excruciating pain, and could only urinate by means of the smallest Nélaton catheter. Behind the peno-scrotal angle the tumor already mentioned was recognized. Notwithstanding its tenseness, a deep fluctuation was discernible. This was unquestionably a peri-urethral abscess, the result of an impacted calculus. It impeded the passage of a solid instrument, and if opened, a thorough exploration of the urethra and bladder would be possible. A free incision was therefore made and a half teacupful of matter evacuated. A large sound could at once be passed into the deeper portion of the urethra where, just beyond the triangular ligament, it encountered an obstacle which imparted the peculiar grating sensation produced by contact with a calculus. With the finger in the rectum a hard body of the size of a walnut could be felt underneath the anterior wall, just within the anus. When this was pressed upon from within it formed a distinct prominence in the perineum. Above the prominence made by the stone the prostate could be felt of normal size and consistence.

After the abscess was opened, the febrile symptoms subsided so rapidly that on the 18th of February the stone could be removed. I chose for this purpose the median operation. Although this case was admirably suited for cutting in the gripe, I preferred the use of the lithotomy staff. When the membranous portion of the urethra was opened the two calculi, which I beg to present, were removed. The larger stone, weighing 265 grains, presents a smooth, rounded surface, is somewhat egg-shaped, and measures 1¼ inches in length by 1 inch in width and thickness. On section, it presents a central cavity and a large number of concentric rings. According to Prof. Fennel it is composed principally of the phosphate of lime, traces of the oxalate of lime and phosphate of magnesium being likewise present. The second stone is very much smaller. It weighs but 5 grains, and presents a very uneven surface. From its appearance, it evidently resulted from the confluence of four or five smaller stones. Although the bladder was carefully examined through the perineal wound, no other calculus was found. On the second day after the operation, the patient passed his urine per *vias naturales*, and he progressed rapidly and uninterruptedly toward convalescence.

The case which I have taken the liberty to report presents certain features of interest. A glance at the two calculi will show that it was almost impossible for the large stone to have become impacted at the site of the abscess which was opened a week before the formal operation. It is likewise evident that the smaller and more roughened stone was solely responsible for the severe symptoms detailed in the clinical history. Just how long the larger calculus had been retained in the membranous portion of the urethra cannot be determined. According to Dr. Brown and a distinguished surgeon of Dayton, it was found in the bladder two years before the final operation. If this be accepted, it developed with marvelous rapidity, since a stone of half its dimensions could hardly have been passed through the prostatic portion of the urethra. Nevertheless even very large calculi are occasionally expelled from the bladder. Thus, J. S. Dunning (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, March 21, 1885) reports the case of a man 62 years of age in whom a stone as large as a hickory nut was expelled from the bladder and lodged behind the glans. Urinary fistulæ developed behind the stone, which was removed seven months after its impaction. When crushed it weighed 300 grains. On the other hand it seems more probable that the larger calculus presented to-day was lodged in the membranous portion for a considerable number of years, gradually receiving new deposits. Indeed there is no limit to the time during which a stone may remain in the urethra without producing severe symptoms. Fleury (*Bull. de la Soc. de Chir*, vii, 631) reports a case of urethral calculus, in the spongy portion, of twenty years' growth. He had detected the stone fifteen years before the operation, which was rendered imperative by retention of urine. In 1862, Mr. Haynes Walton presented a stone to the Pathological Society of London. It was removed from the perineum of a man who had probably carried it for fifty years without suffering greatly from its presence. It finally produced retention and extravasation of urine, but its removal failed to save the life of the patient. It measured 2¼ inches by 1 inch. (Trans. Path. Soc., Vol. xiii, 1862). From the specimen presented and the cases briefly referred to it will be seen that urethral calculi sometimes assume enormous proportions, either by dilatation of the urethra or the formation of a diverticulum. Voillemier saw one the size of a hen's egg. In the *Indian Medical Gazette* for 1883 (JOURNAL AMERICAN MEDICAL ASSOCIATION, 1883, p. 145) is reported the case of a calculus lodged at the peno-scrotal angle, forming a tumor as large as an orange. It weighed 980 grains. In 1878 R. Parker removed a prostatic calculus weighing 1⅝ ounces by rectal incision. A second but smaller calculus was found. In this case a slight recto-urethral fistula remained. (*British Medical Journal*, 1878, Vol. i, p. 85.

The case presented likewise impresses the fact that urethral calculi are not infrequently multiple, being associated with one or more stones in either the urethra or bladder. Civiale reports the case of a man from whom 220 calculi were extracted from a

pouch in the perineum. In the museum of St. Bartholomew Hospital is a part of 149 calculi taken from the middle of the spongy portion of the urethra.

It is particularly in children that urethral calculi present certain features of interest, since in them the thin impaction is often followed by retention and infiltration of urine. When these conditions exist, the usual causes of retention in adults, stricture and prostatic enlargement, can be excluded, and only trauma or impaction of a calculus remain as exciting causes. Of 14 cases of impacted urethral calculus collected by Gault in 1862, only 3 occurred in adults. Of the 11 which occurred in children, 8 were under 5 years of age, and in only one of the 11 cases was the stone lodged in the pendulous portion of the urethra, where it could be removed with the forceps. In the other 10 it was impacted in the perineum, and in 5 of these urinary infiltration was present. In these 10 the stone was removed by section, and in two of the cases in which infiltration existed, death followed.

The treatment of urethral calculi presents but few points worthy of discussion, since it is evident that their extraction is always indicated. When they are situated in the anterior portion of the urethra, where they can be reached with forceps or scoop, they are to be removed by either of these methods. It should be remembered, however, that extensive manipulation is fraught with danger, since the impaction of a calculus in the urethra and efforts to remove it have been followed by the development of stricture (Sir E. Home). Although the crushing of urethral calculi was already described by Albucasis as a formal operation, it has never, for obvious reasons, been generally adopted by surgeons. The dangers attending it are considered of sufficient gravity to exclude it from recognized methods of treatment except in stones that are very friable. When the stone is small and situated in the deeper portion of the urethra, it can often, by means of a large steel sound, be returned to the bladder, whence it should at once be removed by litholopaxy. By far the safest method of treating urethral calculi is that by urethrotomy, and it should be resorted to as soon as the simpler methods already alluded to have been tried without success. The dangers of the operation *per se* are scarcely worth considering, since important parts are not divided. The only unpleasant consequences that occasionally follow it are urinary infiltration and fistula. Neither of these complications is to be feared, however, if the operation be made early, and if the precaution be taken to use the catheter at regular intervals during the first three or four days following it.

GEOGRAPHICAL PATHOLOGY OF CONSUMPTION.[1]

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II.

Hygrometric Conditions.—The relative humidity of the atmosphere has been regarded as an important factor in relation to phthisis. It would seem, indeed, that the degree of saturation of the air with moisture must have a very decided influence upon the progress of pulmonary tuberculosis. In accordance, therefore, with the plan outlined in the first paper, its bearing upon the prevalence of consumption will be studied in a very general manner.

The annual rainfall has been taken as a standard in estimating the comparative humidity of different regions. This standard has been adopted, notwithstanding the well known fact that it is not always correct, the effect of a large rainfall being modified by the porosity and drainage of the soil, and perhaps other conditions. A large annual rainfall is so constantly associated with a high degree of humidity, however, and *vice versa*, that it will serve perfectly well as a basis of comparison. The exceptions are too few to materially modify the result.

We find, as we pass southward along the Atlantic coast, that the annual rainfall steadily increases until it becomes in Florida about double that of Maine. Inversely, the death-rate from consumption just as steadily decreases, until in Florida it becomes (in 1880) precisely one-half that of Maine. But these facts, which seem so conclusive, are opposed by others of scarcely less importance. For example, the region comprising New Mexico, Arizona, Colorado, Utah, Nevada, and Wyoming has an annual rainfall of from eight to sixteen inches—the lowest of any part of the United States. The mortality from consumption for the entire group is also lower than for any state or territory not included in it. This low consumptive death-rate is not due to the general healthfulness of the region; but is rather in spite of the fact that the death-rate from all causes is greater than the average for the United States.

Again, in the region comprising Kansas, Nebraska, Iowa, Wisconsin and Minnesota, the annual rainfall is nearly three times as great as in the last named region. The death-rate from consumption is also nearly twice as great. And this, notwithstanding the fact that the death-rate from all causes is 2.6 per thousand less. In other words, the hazard of dying of consumption is twice as great, although the general risk is about 16 per cent. less.

In the interior counties of Oregon the rainfall is 12 to 20 inches, and the deaths from consumption are 9.6 per cent. of all deaths. The coast counties have an annual rainfall of 50 to 70 inches, and the deaths from consumption are 12.8 per cent. of all deaths. In Washington Territory the interior counties have an annual rainfall of 12 to 16 inches; 12.6 per cent. of all deaths are due to consumption. The coast counties have a rainfall of 44 to 80 inches; 13.7 per cent. of all deaths are due to consumption. In southern California the annual rainfall is 12 to 16 inches; consumption is very rare. In the infected region north of San Francisco the rainfall is 20 to 36 inches.

Clearly, no constant relation can be traced between certain hyetal conditions and the death-rate from consumption; for, aside from minor discrepancies, which could easily be multiplied, in the two regions where it is less than in any other part of the United States, viz.: the Gulf States and the Colorado

region above referred to, the annual rainfall is respectively the greatest and the least—being as high as eighty inches in the former, and as low as eight inches in the latter. If any general law can be formulated regarding the influence of certain hygrometric conditions upon the progress of consumption, it can only be done while keeping in view the associated temperature. These two factors cannot, of course, be entirely separated. When considered together it will be found that, in the United States, a low temperature and a considerable degree of humidity is uniformly unfavorable. We do not have to look far for an explanation of this fact. A damp, cold atmosphere, which would be the necessary result, is the one above all others most likely to induce lowered vitality and internal congestions. Such a combination is found in New England, and with what result all are familiar. These internal congestions will always occur by preference in tissues where, as in tubercular deposits, the blood-vessels are either obstructed or obliterated. Every such disturbance will hasten the pathological process, hitherto slumbering, perhaps, in comparative quiet. Its activity may continue or rapidly increase long after the cause has ceased to act. And thus it is a matter of too common observation that a patient who might otherwise have lived in a fair state of health for years, or perhaps recovered, sinks rapidly into the grave.

With a higher temperature the degree of moisture would seem to be of less importance. Jaccoud says that the desirable limits are to be found between 70 and 80 hygrometric degrees, which is certainly a rather moist atmosphere. With a higher temperature, he says, the dryness of the atmosphere promotes irritation of the respiratory mucous membrane, which is increased by the concentration of the normal and pathological liquids, induced by the rapid evaporation from the surface. So far as mild or warm climates are concerned there seems to be no statistical or rational support for the view that dryness of the atmosphere is a *sine qua non* or even at all desirable for consumptives, or that moisture tends to promote the development of the disease.

The question of soil moisture ought to be considered apart from atmospheric conditions. This would, of course, be impracticable over large areas. Dr. Buchanan's investigations seem to show that thorough drainage lessens the mortality from phthisis. In the table to which I have access, no reference is made to temperature or humidity, a serious omission in the study of a limited area. The tables, moreover, show that along with the lessened death-rate from consumption there was also a diminished death-rate from most diseases—notably of typhoid fever and ague. This result certainly ought not to have been, as Dr. Andrews (Lumleian Lectures, *Lancet*, 1884) says it was unexpected at that time. There is certainly reason for believing that the lessened mortality from consumption, as well as the like result in typhoid fever, diarrhœa, etc., was in large part if not entirely due to the improved sanitary conditions implied by thorough drainage of surface water. Unsanitary influences are doubtless quite as potent for harm in phthisis as in other diseases. In Salisbury, for example, the reduction in phthisis mortality was 49 per cent., while the reduction in typhoid fever mortality was 75 per cent., and of mortality from diarrhœa 60 per cent. With a single exception (Rugby) the decrease in the mortality from phthisis, after drainage, was exceeded by the decrease in the mortality from either typhoid fever or diarrhœa, which shows that dampness of soil has more influence upon these diseases than upon phthisis.

It is easy to anticipate the probable effect of dampness of soil upon the debilitated subject of a caco-plastic deposit like tubercle. The removal of this condition by drainage might render the prolonged existence of many patients possible, who would have succumbed but for this improved condition. This is all explainable without assuming a special relation between phthisis and soil moisture, farther than is implied in the general unhygienic influence of the latter condition.

Coast Influences.—It has been asserted by Dr. Flint and others that consumption is more prevalent upon the sea coast than inland. In Maine this statement is correct; the coast counties having a much larger consumption mortality than the inland counties. New Jersey has also a higher death-rate than Pennsylvania, and Virginia than West Virginia. On the Pacific coast the same relations also obtain between the consumption mortality of the coast and inland counties of Oregon and Washington Territories. Returning to the Atlantic coast, we find that below Virginia the coast States have a much lower death-rate from consumption than any of the interior States adjoining them. These States have, in fact, collectively and individually a lower death-rate from consumption than any other State east of the Mississippi river, except Wisconsin.

A notable exception to the general immunity from consumption of the South Atlantic and Gulf Coast States occurs in Southern Louisiana, where 25 per cent. of all deaths are due to this disease, as against 7.2 per cent. in the northern, or inland, portion of the State. This disparity must be due to some local conditions independent of proximity to the Gulf Coast, and can not weigh, unless it be as an exception to the rule, against the facts obtained from the extensive coast line above this region. The percentage of deaths from consumption to all deaths in the interior or northern portion of the State bears a very close resemblance to that of the remaining Gulf and South Atlantic States, thus showing that the southern portion, where the mortality from this disease is more than tripled, is anomalous, and subjected to exceptional influences. In the very next State, Texas, the mortality percentages are reversed, being 10 per cent. for the coast, and 11.1 per cent. for the interior counties.

In California, the section just north of San Francisco Bay is one of the worst infected districts in the county; while Southern California is so free from consumption that it is resorted to by victims of the disease in the hope of benefit or cure. Yet both are coast regions, kissed by breezes from the same ocean. There are no available data at hand for mak-

ing a calculation of the percentages for these two sections of California. It is rather suggestive to note that on both the Atlantic and Pacific coasts the region of greatest immunity from phthisis is south, with its higher temperature, and the region of its greatest prevalence, north, with its lower temperature. The moisture-laden air from the sea would have a very different effect, according as it was associated with a high or low temperature, in accordance with the views already expressed. It is possible that this may, in part, account for the varying mortalities from consumption found on different parts of the same coast line. This explanation seems entirely adequate so far as the main facts regarding the Atlantic coast are concerned, but may appear insufficient to account for the facts in California. It will be remembered, however, that this State has a very extensive coast-line. The mean annual temperature of San Francisco is five degrees lower than that of San Diego, a range including less than two-thirds of the State. This difference is great enough to have a marked influence, though of course not great enough to account for the difference in mortality from consumption, which is very wide.

But whether this view be at all correct or not, the facts cited are certainly sufficient to warrant the assertion that consumption is not, with anything like uniformity, more prevalent on the sea coast than inland.

CHRONIC NECROSIS OF FIBULA AND TIBIA, OF TEN YEARS DURATION; AMPUTATION AT LOWER THIRD OF FEMUR; RE-AMPUTATION AT UPPER THIRD; RECOVERY.

BY R. H. JENKINS, M. D.,

OF HOGANSVILLE, GA.

The following case is deemed worthy to be placed on record on account of its interest from a surgical point of view, and also on account of its rather unusual course and termination.

Fred W., colored, æt. 15; parents had never had syphilis or struma. He was considered a healthy child until his fifth year, when there was a simple fracture of the tibia of the right leg at the middle third, caused by falling out of bed; two or three months after union the limb began to swell, the bone enlarged, and continued to enlarge for two years without suppuration; then two large ulcers formed, on the internal and external surfaces of the leg. From one, two small spiculæ of bone were discharged at different periods up to the date of my first visit.

His condition at that time was hectic, he was suffering with an acute attack of bronchitis, which yielded to treatment in a week, had very little appetite, and weighed only sixty pounds, having shown no physical development whatever for eight years past; upon the surface of the leg, from the knee to the ankle-joint, there were nineteen ulcers, situated over the cloacæ that are to be seen in the shaft of the tibia, connected by numerous sinuses, the ulcers measuring in circumference from the size of a silver five-cent piece to that of a silver dollar, all discharging an exceedingly fetid, ichorous, semifluid, dark-colored pus. From the commencement of suppuration he had not been able to extend the leg from the knee, or to bear any downward pressure upon the foot, owing to the continued rigid contraction of the muscles, which had drawn the leg at the knee backwards at a right angle with the thigh; and any effort at forcible extension made by himself, or a manipulator, brought on a violent rigor lasting from ten to twenty minutes, during which he complained of severe lancinating pains, commencing in the foot, and extending up the entire leg, terminating at the lower portion of the back; his skin would be bathed in a profuse and general perspiration all over the body, with the single exception of the diseased portion of the leg from the knee to the toes. The pains would then suddenly cease and the sensations of cold and numbness, which he had felt in the leg for three or four years, would return, and continue until another attempt at extension was made. I ordered cod-liver oil, iron and quinine, which caused a general and rapid improvement.

On August 20, 1883, twenty days subsequent to my first visit to him, assisted by Drs. Cook and Hudson, I commenced amputating at the lower third of femur, through normal skin, tissue, muscles and periostium, until I came to the medullary canal, which was half filled with a pinkish-colored, grumous matter in a degenerating state, and detached from the periphery of the bone. The fibula represents the condition of the femur, minus the medullary substance, from the middle third to the knee, except the condyles, tuberosities and articular faces. The patella and all the bones of the foot were free from disease. The shaft of the tibia had a small sequestrum encased in new bone, and in the latter are to be seen the numerous cloacæ; while the articular surfaces for condyles of femur, inner and outer condyles, internal malleolus, and lower extremity of the reproduced bone had undergone necrosis. The medullary canal of the fibula was in the same condition as in the lower extremity of femur. The head of the bone, and external malleolus had undergone complete degeneration and had been discharged. The shaft had been fractured by muscular contraction, and showed commencing necrosis in its periphery.

I immediately re-amputated at the upper third of the femur, through normal bone, and used carbolized water dressings to the wound, which healed by first intention. I continued the supporting treatment as above described for one month after the operation. Six months afterwards he came to my office with a sound stump, and weighed one hundred and forty pounds. I saw him again in 1885, eighteen months after the amputation; his health was good, and he was self-supporting by harness making. The most remarkable features in this case were the extraordinary powers of resistance to septicæmia and constant drainage prior to the removal of the diseased member, and the subsequent continued and complete recuperative capacity of the system, under the most unfavorable hygeinic conditions.

MEDICAL PROGRESS.

SURGERY.

TREATMENT OF SPINA BIFIDA BY THE INJECTION OF IODO-GLYCERINE SOLUTION.—The Clinical Society of London, some time since, appointed a committee to consider this subject, and they made their report at the meeting held May 22, 1885, an abstract of which may be found in the English journals. The committee undertook an examination of all the specimens of this deformity contained in the London museums, as well as those in Cambridge and Glasgow, and sundry others placed at their disposal by different contributors to the report. The subject was therefore divided into two parts: *first*, the pathological anatomy of spina bifida; and *secondly*, the treatment of the deformity.

Pathological Anatomy. The term spina bifida was used to define certain congenital malformations of the vertebral canal with protrusion of some of its contents in the form of a fluid tumor. With very rare exceptions, the malformation affected the neural arches of the vertebræ, and the tumor projected posteriorly; in rare cases, however, the bodies of the vertebræ were involved, the tumor in such cases protruding anteriorly into the thorax, abdomen, or pelvis between the lateral halves of the bodies affected. The specimens fell under three chief divisions: 1, protrusion of membranes only (spinal meningocele); 2, protrusion of membranes together with the spinal cord, and its appertaining nerves (meningo-myelocele); and 3, protrusion of membranes together with the spinal cord, the central canal of which was so dilated as to form the sac-cavity, the innermost lining being constituted by the expanded and atrophied substance of the cord (syringo-myelocele). The comparative frequency of these three varieties is meningo-myelocele, meningocele and syringo-myelocele last. The dissection of a typical case was given in the report, with the theory, best explaining the pathological anatomy, which assumed a primary defect of development of the mesoblast from which the structures closing in the vertebral furrow were developed.

Clinical Course and Treatment of Spina Bifida. The Registrar General's Report for 1882 showed 649 deaths from spina bifida in England and Wales, of which 612 died under one year of age. The committee held that, though a certain number of these deaths were due to local causes—rupture of the sac, draining away of the cerebro-spinal fluid, and subsequent septic meningitis—yet in a large proportion of the cases death ensued from the marasmus and general defective nutrition so frequently associated with the deformity which could not be remedied by any local or other treatment. As regards treatment, injections with simple solutions of iodine showed a considerable amount of success. Good results seemed to have been obtained from ligature of the sac. Excision likewise had a considerable proportion of success. The plan of repeated tapping and pressure gave the least successful results of any. The injection of Morton's fluid showed a percentage success of between 50 and 60. The high mortality was thought to be largely due to the treatment having been adopted in unsuitable cases on account of its simplicity and supposed safety. In spite of the favorable results of ligature and excision, the committee reported against these methods of treatment, and advocated the plan of treatment by injection, and preferably by the injection of Morton's fluid.

PROF. HUMPHREY, of Cambridge, in a lecture on this subject (*Edinburgh Med. Jour.*, June, 1885), considers the sac as most likely developed from a subarachnoid lymph space. In the treatment by injection, he thinks it better to introduce the needle, not in the mesial line, especially in the upper part, where the cord is almost certain to be connected with the walls of the sac, but on one side. Further, the separateness of the cavity of the sac from the cavity of the spinal arachnoid, in most instances, is some security against the direct passage of the injected fluid into the latter cavity, and the advantages of Morton's fluid, as an injection, probably depend upon the addition of glycerine to the iodine and iodide of potassium, lessening the liability to the diffusion of those irritating substances through the delicate lining of the sac into the surrounding subarachnoid tissue.

COCAINISATION OF THE BLADDER.—DR. P. BRUNS, of Tübingen, records (*Berl. klin. Woch.*, No. 21,) a case of litholopaxy in which the bladder and urethra had been rendered insensitive by cocaine. The patient had suffered from symptoms of stone for four years, and, on sounding, the stone was found to be hard and rough, and two centimetres and a half in diameter. There was also considerable purulent cystitis. As a preliminary measure the bladder was washed out with boro-salicylate solution; then twenty grammes of a two per cent. solution of cocaine were injected into the bladder, and ten grammes into the urethra. By shifting the position of the patient the contact of the injection with all sides of the bladder was ensured. After a few minutes' interval the bladder was filled with the boro-salicylate solution, and the operation proceeded with. Owing to the hardness of the calculus thirty-three crushings were necessary, occupying twenty-two minutes; but during the whole period no pain was felt, although previously the patient had hardly borne the passage of a catheter. During the evacuation pain was experienced each time the bladder was distended, but the anæsthesia had lasted for half an hour. Finally, a small quantity of a ten per cent. iodoform glycerine solution was injected, with a view of protecting the abraded bladder from purulent absorption. The calculus, which was of the oxalate mulberry variety, weighed 4 grammes. A speedy recovery ensued.—*Lancet*, May 30, 1885.

COCAINE IN THE EXTRACTION OF A NEEDLE FROM THE FOOT.—MR. SAMUEL NALL reports a case in the *British Medical Journal*, of June 27, in which a fragment of a needle, lying about a quarter of an inch beneath the surface of the foot, was easily and painlessly extracted after the application of a 4 per cent. solution of cocaine.

THE
Journal of the American Medical Association.
PUBLISHED WEEKLY.

THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, JULY 18, 1885.

THE INTERNATIONAL MEDICAL CONGRESS OF 1887.

The events of the past week have only served to demonstrate more clearly the appropriateness of our remarks in the JOURNAL of last week concerning the inexcusably hasty action of several prominent members of the profession in Philadelphia, Baltimore, and Boston, regarding the action of the Committee on the Organization of the International Medical Congress of 1887, at its recent session in this city. Such action was taken, not only before the proper officers of the Committee had made any authorized report, but before the Committee had in any proper sense so far completed their work as to make a publication of the same proper. The very nature of the work the Committee had to do, with the limited time allowed for the meeting, rendered it highly important that their action should be carefully written out and reviewed at least by the Executive Committee, the prominent appointees conferred with, and time given to receive suggestions, supply defects and fill vacancies caused by declinations or otherwise.

The General Committee as first organized had its first and only meeting in Washington in November, 1884, and they took four months subsequently in which to confer and further perfect their work through the agency of their Executive Committee, before publishing the results, and then left several parts incomplete. But now, forsooth, in four days after adjournment of the Committee, on mere partial, verbal reports, a few grave, learned, and hitherto justly honored members of the profession in the three cities named, hasten together and denounce the work of the Committee as "detrimental to the interests of the medical profession in America," and ostentatiously resolve to "decline to hold any office in said Congress as now organized." If these men had first taken pains to learn accurately what the present Committee had done, and then assembled for the purpose of considering the more important items with a view of suggesting improvements and thereby aiding the Committee in rendering their work more complete and acceptable, they would have given evidence that they had more regard for the honor and interests of the profession than for their own personal prejudices and dislikes; in other words, they would have acted like *men*, and not like half grown school-boys. Although the assembly of twenty-eight in Philadelphia, the nineteen in Boston and the twelve in Baltimore each solemly adopt preambles and resolutions, not one of them specifies any particular provisions or rules that had been adopted by the Committee on Organization, the practical working of which would prove "detrimental to the profession in America," or in any other country. But from the editorial comments in the *Medical News* of Philadelphia, the inference may be drawn that the alterations made in the first *Rule*, by which the American membership of the Congress was limited to delegates appointed by the American Medical Association and the State and local societies in affiliation with it, was the chief cause of dissatisfaction.

It is claimed that the International Medical Congress is a purely scientific body, having no reference to particular national or State medical organizations. Evidently recognizing some force in this claim, the members of the Council of the New York State Medical Association held a meeting, not like their brethren in Philadelphia and Boston, to denounce the work of the Committee and hasten to wash their hands of all further responsibility, but to devise, if possible, some improvements. And after due deliberation, they make to the Committee on Organization the following suggestion:

"*Resolved*, That the Council of the New York State Medical Association respectfully recommends to the Committee of Arrangements for the International Medical Congress the following modification of the rule by which the American membership of the Congress is to be constituted, to wit:

"That the American membership of the Congress be constituted of delegates, who shall be entitled to participate in the business and scientific proceedings, and of members who shall be entitled to participate only in the scientific proceedings of the Congress; that the delegates may be appointed by the American Medical Association and by State and local organizations in affiliation therewith, in the proportion of one delegate for every ten or fraction of

ten members of the organizations thus represented; that members of the regular medical profession of the United States may become members of the Congress by registering their names as such and by taking out tickets of admission."

For all the purely *scientific* interests and proceedings of the proposed Congress, this proposition opens the door to all the members of the regular medical profession of the United States to become members of the Congress, by simply "registering their names as such and taking out tickets of admission."

This proposition will doubtless receive the favorable consideration of the Committee on Organization, and is certainly liberal enough to satisfy the purest scientists in this or other countries. If we are correctly informed, there is another part of the work of the Committee that needs further attention. During the session in Chicago, the Committee readopted Rule 6, without alteration, which reads as follows:

"6. All addresses and papers, read either in the General Meeting or in the Sections, are to be immediately handed to the Secretaries. The Executive Committee, after the conclusion of the Congress, shall proceed with the publication of the transactions, and shall have full power to decide which papers shall be published, and whether in whole or in part."

The duties enjoined in this rule are very important; and the Executive Committee referred to was a Committee of the Congress provided for in the previous Rule 10. But the present Committee, in changing Rules 9 and 10 in such manner as to make the General Committee on Organization a simple Committee of Arrangements, with officers entirely separate from the officers of the Congress, have omitted to provide for any Executive Committee of the Congress proper. This is an important omission, and we would suggest that the Committee supply it by a rule making the President of the Congress, the Secretary-General, the Chairmen of the Finance Committee, and the Chairman of the several Sections an Executive Committee of the Congress for the purposes named in the sixth rule. These considerations make it desirable that the Committee have time for further conferences before any formal publication of their proceedings.

We understand that the officers of the Committee are already taking the preliminary steps for another meeting early in September; and if the professed friends of the Congress will take half as much pains to aid the Committee in completing wise and satisfactory arrangements, as some of them do to find fault and throw obstacles in the way, there will be no trouble in securing good arrangements and a successful Congress.

"A cardinal source of dissatisfaction with the new organization is that it is under the control of a handful of discontented men, who were not included in the preliminary organization, and who stirred up this trouble for what they could make out of it."—*Medical News*, July 11, 1885.

Just so, the simple truth will come out sometimes even by accident. After all the pretenses, then, about changes in the plan of organization, a *cardinal* source of the dissatisfaction with our learned friends of the Quaker City, is that poor Mordecai is found sitting at the King's gate.

"There can be no question that the Committee of eight had full and specific authority to add to its membership, and that the original Committee thus enlarged was authorized to make all arrangements for the Congress, so far as the American Medical Association could give such authority. The International Medical Congress accepted the invitation with this understanding, and thereby practically accepted the original Committee of eight as its Committee of Organization."—*Medical News.*

Grant it all, and there can be no possible question that the same American Medical Association from which the Committee of eight derived all the authority it ever had, made itself fully responsible for the acts of its Committee, and possessed just as "full and specific authority" to modify the powers confered whenever it might choose to do so. And yet on the first attempt to do this, five of the eight voluntarily abandon their position, and ingloriously turn their backs upon their duties both to the Association and the Congress. Pure unselfish patriotism that!

THE OPERATIVE TREATMENT OF ASTHMA.

Such is the title of an important and interesting paper read by DR. WILHELM HACK at the Fourth Annual Congress of Internal Medicine held last April at Wiesbaden, Germany. This address forms the latest contribution to our knowledge of certain reflex phenomena which have been carefully studied by French, German, English and American rhinoscopists. We refer to certain neurosal conditions, notably hemicrania and asthma, which are found to be occasioned reflexly by diseased states of the nasal mucous membrane. Attention was first directed to this possibility by Voltolini, who reported the cure of a case of asthma by the removal of a nasal polypus. Similar observations were subsequently made, and the subject was discussed, by Hänisch, Fränkel,

Hack, Bresgen, Sommerbrodt, Porter, Daly, Todd, Spencer, Mulhall, Joal, Jacquin, Mackenzie, Eslberg and others in Europe and America. It was speedily discovered that not merely asthma and hemicrania, but also cough, supraorbital neuralgia, nightmare, chorea, epileptiform seizures, dizziness, palpitation of the heart, dyspeptic symptoms and other phenomena, attributable to vaso-motor disturbance might in rare instances have their point of departure in structural alteration or abnormal irritability of the nasal cavities.

For the most part these conditions are such as partially or wholly occlude the nares, as polypi; but Hack's observations have shown that these reflex phenomena are not due necessarily to the polypi, that is, to any obstruction of the nasal orifice, but to irritability of the nasal tissues. In several instances he removed redundant and irritable portions of adjacent mucous membrane, leaving the obstructing new-growths *in situ*, and thereby achieved an immediate cessation of the asthma. Clearly then, the obstruction was not the cause of the mischief. In accordance herewith, Schäffer announced that reflex manifestations might accompany chronic nasal catarrh, and endeavored to account for the asthmatic complications as being reflex through the vagus, and not at all due to direct impediment to the free passage of air through the nasal fossæ or to any chemical action of the polypi upon the inspired atmosphere, as was at first suggested.

Fränkel went further than Schäffer and explained all reflex manifestations as dependent upon an abnormal irritability of the sensory nerves distributed to the mucous membrane of the nose. Hack accepts this theory as satisfactory in many cases, but believes in the majority of instances that the connecting link between diseased conditions of the nose and the reflex disturbances, accompanying them, is an acute or chronic turgescence of the turbinated bodies, particularly the anterior extremity of the lower turbinated body. Accordingly, he destroys these hypertrophied structures, with the galvano-cautery, in every case where their enlargement seems to be the disturbing element. In his paper before the Congress, he reports two hundred and forty cases of hemicrania which were cured by the operative treatment. Of eighty-seven cases of asthma, a large majority was entirely relieved. Space does not admit of a detailed account of some of his cases, and hence our readers are referred to the *Berliner klinische Wochenschrift*, Nos. 21 and 22. Hack's statistics are so gratifying that it would be natural and excusable if young rhinoscopists were rendered wildly enthusiastic by the perusal of them, and should expect astonishing results to follow every operation for the removal of redundant tissue or new-growths within the nasal fossæ. Yet, Hack himself, out of a vast experience, deprecates, and warns against unbounded enthusiasm. While every rhinologist should be on the lookout for these cases, he must not be disappointed if he goes long without finding them.

Hack has undoubtedly explored this field of research the most thoroughly, and obtained the greatest fruits. Last year he published a monograph entitled: "Concerning the Operative and Radical Treatment of Certain Forms of Migraine, Asthma, Hay-Fever and Numerous other Allied Conditions." As it is beyond the scope of this article to review this monograph, we will only make a few extracts from the author's conclusions. Among conditions which reflexly occasion a turgescence of the turbinated bodies, he mentions pathological changes in the mucous membrane of the nose, or pharynx; excitation of nerves of special sense and sensory cutaneous nerves; disturbances of the sexual organs, as *e. g.*, menstruation; direct irritation as from dust, heat and cold. On the other hand, turgescence of the turbinated bodies occasions various phenomena of a reflex nature. And in many of these Hack attributes the symptoms to a vaso-dilator influence upon the vessels of the part. Thus for instance, he explains flushing of the upper part of the face, hyperæmia of the conjunctivæ, and in one case an amount of redness and swelling of the skin which actually amounted to œdematous infiltration of the part concerned. The headache, lachrymation and other symptoms belonging to acute coryza and hay-fever, he would also account for as reflex manifestations.

In conclusion of this highly interesting and important subject, we think a word of caution not out of place, and hence, quote the words of Morell Mackenzie. He says: "Whilst fully admitting that many reflex phenomena may arise from disease within the nose, I must caution the younger specialists that the various complaints, referred to as resulting from nasal disease, are much more frequently due to other conditions, and that every other possible cause must be eliminated before the nose is incriminated."

THE SURGICAL TREATMENT OF CYSTS OF THE PANCREAS.

Such is the title of a valuable paper read before the late annual meeting of the American Medical Association by DR. N. SENN, of Milwaukee, and published in the July number of the *American Journal of the Medical Sciences*. It may be remarked, *en passant*, that as this paper was read before the As-

sociation, it was the property of that body; and as that body has an official organ for the publication of papers belonging to it, it does not need very much argument to show that the paper is out of place in any other journal until it has been published by the official organ, except by special permission of the Association.

As the basis of his paper, Dr. Senn reports a personal case of cyst of the pancreas in which he performed laparotomy, with the result that the patient recovered. In this case there was a history of traumatism, a severe blow on the left side of the abdomen and back, subsequent diarrhœa, and the appearance of a tumor in the left hypochondriac region two weeks after the injury. Five weeks after the receipt of the injury, he was admitted to the Milwaukee Hospital, and came under the care of the author of the paper. At this time there was considerable emaciation, and the patient complained of a sensation of fulness and weight in the region of the stomach, always increased after eating, and only relieved by vomiting. The tumor occupied almost the whole of the epigastric region and the entire left hypochondriac, the most prominent part being to the left of the median line, and about three inches below the ensiform cartilage. There was a line of dulness extending from the left nipple to within an inch above the umbilicus; posteriorly the dulness extended from the eighth to the inferior border of the twelfth rib. There was distinct fluctuation on percussion, the wave of fluctuation being conveyed across the whole area of dulness. The heart was so much displaced upwards that the apex beat was distinctly felt in the fourth intercostal space. "The stomach was artificially distended by carbonic acid gas, when it was ascertained that it was pushed to the right and compressed by the tumor." In order to ascertain the nature of the contents of the tumor, the needle of a hypodermatic syringe, after being thoroughly disinfected, was introduced into the most prominent portion of the tumor, and some of the fluid withdrawn. It was viscid, slightly opalescent, alkaline, and contained a considerable amount of albumen.

The weight of evidence being in favor of a cyst of the pancreas, laparotomy was performed under the strictest antiseptic precautions, and the cyst was opened and emptied, and its walls drawn forwards into the wound and stitched to the parietal peritoneum, this having been previously united with the skin. The patient did not vomit after the operation, the pulse did not rise above 90, and the highest temperature was 100° F., on the day after the operation. The sutures were removed at the end of the first week, no other dressings were applied, and the skin healed without suppuration, only a small amount of pus escaping through the fistulous opening with the secretion. "The secretion became clearer after the operation and continued to discharge in varying quantities for almost four weeks. One of the drainage-tubes, inserted at the time of the operation, was removed at the first change of the dressing, and the second was gradually shortened and entirely removed four weeks after the operation. At the end of the second week, the cyst was explored with a disinfected probe, which passed to the depth of eight inches in the direction of the tail of the pancreas." The fistulous tract, becoming lined with granulations, grew smaller and shorter, and at the end of eight weeks it was so narrow as only to admit a small probe, which passed to the depth of four inches. In January, 1885, the patient was discharged, cured, with the fistula completely closed, and perfect digestion.

We have only commendation for the manner in which this case was treated. Though there are several affections which may come up in the differential diagnosis of cystic disease of the pancreas (or of almost any abdominal tumor), the treatment for those which are most likely to be confounded is practically the same at the outset—exploratory aspiration or incision. It is very unlikely that a surgeon could, after a thorough examination, with a knowledge of the history of the case, mistake an aneurism, malignant disease of abdominal organs, circumscribed peritonitis with exudation, or ascites even, for cystic disease, echinococcus, or hydro- or pyo-nephrosis. And Dr. Senn very pertinently says: It may be stated that a positive diagnosis has so far not been made in a single instance (of cyst of the pancreas), and that for all practical purposes it is only essential to make a probable diagnosis between a pancreatic or some other kind of a cyst which would call for the same kind of surgical treatment. In very obscure cases an exploratory incision under antiseptic precautions for diagnostic purposes is a justifiable procedure.

Dr. Senn recommends that the incision be made, not through the linea alba always, but through the most prominent part of the tumor, for if adhesions form they would naturally begin at this point; the incision over the most prominent part would increase the facilities for proper drainage; and the band of connective tissue, resulting from atrophy and obliteration of the cyst, would form a permanent ridge between the gland and the cicatrix in the abdominal wall; and this band should be where it will least interfere with underlying organs.

SOCIETY PROCEEDINGS.

SUFFOLK DISTRICT MEDICAL SOCIETY.

SECTION FOR CLINICAL MEDICINE, PATHOLOGY, AND HYGIENE.

Meeting of April 8, 1885.

DR. JAMES C. WHITE IN THE CHAIR.

DR. F. F. DOGGETT read a paper entitled

METALLIC POISONING, FROM CANNED FOODS, WITH A REPORT OF SIX CASES OF POISONING FROM CANNED TOMATOES.

Considering the vast amount of canned food consumed and the chances of metallic poisoning in its use, it is certainly remarkable that so few cases of such poisoning are on record; hence the interest of the cases reported in this paper. From a hasty search of the literature of the subject, drawing references from the five volumes of the *Index Medicus*, as well as other sources, but a comparatively few cases have been found. Most of these have occurred in England and America; but few in France and Germany, this being probably due to the fact that much less canned food is used in the two latter-mentioned countries.

In addition to the above, I have collected together certain hints about the process of canning foods and the appearances of bad cans and their contents, whereby, in cases of lead-poisoning or irritant poisoning, if we suspect canned food as the cause, we may arrive at some opinion as to the suspected can and its contents; and this will be found to be a most practical help to us as practitioners.

Dr. Johnson, in a paper read before the New York Legal Society, April 8, 1884, gives an account of several cases of corrosive poisoning from zinc and tin chloride in canned goods. The zinc chloride is with tin chloride formed into a flux or solution, and is used in soldering the ends and sides of the cans instead of rosin and ordinary solder, than which it is much more convenient though very poisonous, and in spite of great caution it may at times get into the contents of the can. So certainly is this means of poisoning from canned food recognized that the State of Maryland has passed a law forbidding the use of the poisonous zinc and tin chloride amalgam in canning food.

In all his cases diarrhœa was very marked at first, which is not usually the case in simple lead-poisoning. In the cases in which the pulse was especially examined there was great disturbance, it being irregular and very quick, from 120 to 150. In simple lead-poisoning the pulse is slow, according to Flint. According to Reeve, it is sometimes quickened. But in poisoning from an irritant, metallic poisons as copper, zinc, or tin, the pulse is small, irregular and quick. Stannous chloride is very poisonous; the symptoms from poisoning by this salt resemble corrosive sublimate poisoning, though much milder. It is improbable that in these or similar cases of poisoning a poisonous tin salt could come from the wall of the can itself; though there is some reason to suppose that lead may so contaminate the contents of the can. First in regard to tin:

In 1878, A. E. Menke reports that in an analysis of many specimens of canned lobsters, apples, and pineapples he found tin present in the contents of all, and in the latter as much as 1.3 gr. to lb. This was reported in the *Chemical News* (England). In 1880, Hehner, in the *Analyst* (Eng.), reports that he found tin present in canned asparagus, tomatoes, peaches, pineapples, cherries, corned beef (five brands), oysters, sardines, salmon, mutton, chicken, turkey, and canned milk (three brands). In the milk there was one-tenth gr. to lb. In soup, one-half gr., and in oysters seven-tenths gr. Later, Wynter Blyth, in a report to the Vestry of Marylebone, found, in twenty-three samples of tomatoes, in cranberries, apricots, and pineapples, larger quantities in in form of stannous hydrate, which is much less active than stannous chloride. In some of the above specimens he found as much as 14.3 gr. per lb., and the average amount in all examined was 6.2 gr. per lb. In some, even the juice had a metallic taste. In some cans the tin was corroded. By experiments on Guinea-pigs with stannous hydrate, Orfila found that it took .174 gm. per kilo in weight of body of the animal to produce death. Assuming man equally susceptible to the poison as the Guinea-pig, it would take from three to four drachms to kill a man. It is probable, however, that small repeated doses act more powerfully, as with mercury. Such a result is likely to follow after long-continued living on an exclusive canned diet, as on long voyages. Such a state of affairs was found to be present among the officers and crew of the ill-fated Jeannette on their memorable retreat over the ice to the coast of Siberia. The goods had been canned for two winters and two summers, and had been a constant article of diet. The longer the vegetable and fatty acids are in contact with the metal the more will be the likelihood of a poisonous stannous compound forming. In Germany Drs. Unger and Bödlander examined a great number of cans of fruit and vegetables, and always found tin present in the solid parts as an insoluble stannous compound, the per cent. of tin being .04.

On May 5, 1884, Professor Attfield, of England, read a paper before the Pharmaceutical Society of London, detailing a large number of analyses of sixteen varieties of foods, in only a few cans of which could tin be found, even in small quantities. In his opinion a harmful quantity would produce such a disagreeable taste as to render it unfit for food; further, that the "public has not the faintest cause of alarm respecting poisoning from either tin or lead in canned food;" further, that when symptoms have been reported they have resulted from stannous or plumbic chloride, formed with hydrochloric acid in soldering, this tin salt being very poisonous. He further thinks that a poisonous tin or lead salt may be formed by contact of the fatty or vegetable acids on the metal of the can or solder when kept open in the air waiting to be used. A commissary officer, high in the United States Army, has made the statement that during a series of years in different parts

of the country hundreds of thousands of cans of food have been used by the army, and no case of poisoning from such food has ever been reported. That extraordinary care is used in selecting the cans in the United States service I know to be true, as a gentleman lately in the Navy informs me that all swelled cans are rejected.

It is probable that a large part of the canned food at any time on hand has not been freshly canned. Hence the great resistance made to the passage of the proposed bill through the New York Legislature in the spring of 1884 by the producers of canned goods. The bill was to the effect that each can should be stamped with the date of its preparation. I have found that in "the trade" the inferior goods are known as "Seconds" and "Re-processed," which means that the cans which have failed in the first preparation to become hermetically sealed, or those which have rusted or got punctured and the inside of the can oxidized and chemically acted on by the acids of the contents, and perhaps the contents partially decomposed; such cans are superheated in steam or boiling water, resoldered, and returned to the market. So far as poisoning from tin is concerned by formation of a poisonous compound from chemical union of acids of the contents of the can with the metal, either in the solder or from the walls of the can, or from careless use of stannous chloride in soldering, the great bulk of testimony shows that such poisoning may occur. The apparent discrepancy between Professor Attfield's testimony (although he admits poisoning may occur from tin) and other authorities is explained when we recall that they were examining different specimens.

Four of his cases were cases of lead-poisoning from eating the canned tomatoes; and having demonstrated the presence of lead in a specimen of the same brand obtained from the same source, it remains to inquire how lead may get into the contents of the can. When genuine solder is used some small quantity of lead in it may get in and be acted on by the contents, forming a soluble salt, and so be absorbed; but in all the analyses to which he has had access this has never been considered of consequence enough to suggest poisoning, except with a strong acid contents.

The other possible source of the lead is important. It appears than an amalgam of tin and lead is cheaper than the former metal alone, hence there is always an inferior quality of tin in the market which contains from ten to one per cent. of lead, and such tin has been used in canning foods, and lead-poisoning from such a cause has resulted. For instance, Dr. Magruder publishes a case of lead-poisoning from eating canned corn. He found that tartaric acid was used in preparing the corn, and that the tin of the can had a certain amount of lead as an amalgam with it. This he proved by testing the tin of the can, and he found the same to be true in several cans of the like brand which he tested. This was verified by Dr. Onderdonk, of St. James College, Maryland, who out of many cans tested found only two free from lead. Dr. Dorsh reports that out of a large number of cans tested he found lead as an alloy with tin in almost every case. An alloy of lead and tin is more easily oxidized and dissolved than tin alone. I have tested twenty cases of many brands, from the cheapest to the highest price, and have always found lead present in the tinning of the cans. This, too, with weak solutions of nitric acid, allowing the acid to act some time and then getting the characteristic yellow iodide of lead by dropping on a crystal of potassic iodide. The principal examiner of chemicals in the Patent Office at Washington says that all commercial tin is alloyed with lead; and that the formation of salts of lead and tin when in an alloy is especially liable to take place in presence of fruit acids. Professor Wormley, of the University of Pennsylvania, gives his testimony that several cases of lead-poisoning have occurred after eating canned fruit. Naunin, in Ziemssen's Cyclopedia, says a mild lead-poisoning may occur from the action of fatty and vegetable acids on the lead in an alloy of tin and lead. Some specimens, such as Bohemian tin, may contain ten per cent. of lead.

On the other hand, F. P. Hall, after analyzing a number of specimens of tin used in canning food, says the tin is generally pure, and in his opinion such acids as would be present in canned food would not affect impure tin enough to cause poisoning. The French Commissioner of Hygiene admits cases of lead-poisoning from canned food in cans made of tin and lead alloy, and suggests that a law should be made in France compelling the use of pure tin. M. Gautier, in France, reports that no death has been traced to canned goods, but many cases of lead-poisoning have been reported from continued use of such goods. To show how the specimens of tin used in canning goods may differ, so good an observer as Professor Remsen, examined some of the same brand of canned corn which produced lead-poisoning in Dr. Magruder's case, and reports that lead was absent in the corn; also in the metal of the can. So that, as pointed out in reference to poisoning from a salt of tin, contradictory evidence of this kind should have no great weight, as some specimens of the same brand are good and some bad. In the case of lead-poisoning seen by the writer, it seems most probable that the lead salt absorbed was produced in the cans by the chemical action of a vegetable acid from the tomatoes acting on the lead contained in the alloy of the can, and possibly on a little solder which may have got in through carelessness. The writer regrets that he did not test the suspected can for lead in form of an alloy.

In general, the possible sources of danger to the consumer of canned foods are to be found in the structure of the can, the solder, or in the contents, *per se*. As to poisoning from decomposed animal canned food, many cases have been reported. For instance, in the *British Medical Journal* of November 1, 1879, there is reported the account of the poisoning of twenty-one persons from eating "Chicago corned beef." The symptoms were those of an irritant poison, even proceeding to collapse, though all the cases recovered. Usually the unpalatableness of the contents is enough to warn the consumer not to partake. The bad condition of the contents

can often be foretold before opening the can; as, if air has been admitted at the time of soldering, or from improper methods of preparation, or original unsound contents, decomposition will take place and fermented gases be formed within the can, together with the acids; this will cause the ends of the can to bulge outward. In "the trade" such cans are called "swells." Such cans should be rejected. A recent writer on the subject has said that a bad can will have a rattling contents on being shaken. I think this proves nothing as to the badness of a can; for, in case of between thirty and forty cans of tomatoes, the contents were found perfectly good on eating, though before opening the contents of the cans rattled on shaking.

Among the cheaper grades of canned tomatoes I have occasionally found that the contents will curdle milk, though it may taste and look as usual. I think in such cases that some fermentation has taken place, and in the process a vegetable acid has been found to curdle the casein of the milk. Ordinarily, the juice of the tomatoes mixes with the milk without curdling it. Accordingly, if a little of the juice of a suspected can of tomatoes will curdle an equal quantity of sweet milk, one would be justified in assuming the presence of some vegetable acid in the tomatoes. It is only a question of amount of acid and length of time it remains in contact with the surface of the can that will determine the presence of a lead salt in the contents of the can. The contents may have a metallic or astringent taste, as in the above-reported cases, and then it should be rejected. As to the solder, there is danger of corrosive poisoning from presence of tin, or zinc, or lead, or all. For it is now, or has been, a custom, within a short time, to use a flux of tin and zinc chlorides, and with hydrochloric acid to solder on the head of the can. This is so poisonous that a small quantity in the can would do much damage. The ordinary way of soldering is with a solder of tin and lead with rosin, which last in melting leaves its trace around the head and at the side of the can. Hence, reject a can not showing this, as then the presumption is that the poisonous solder has been used. A small piece of the tin and lead solder may fall into the can, but as yet has never been shown to have done harm. However, if a large surface of solder is left on the inside of the can by the solderer, and if acids were formed in the can, there would be a good chance for lead salts to be formed; for ordinary plumber's solder contains seventy-five per cent. of lead—a much larger amount than would be found in the turning of the can.

The acids likely to be formed by fermentation or decomposition of the contents of the can are from vegetables and fruits, acetic acid, malic, citric, and tartaric; from meats or fish mostly butyric acid.

As solder is somewhat expensive in quantities, and an unskilful solderer will use more than a skilful one, solder in sticks is sold to each man. We may see from this that some cans would have more solder on the inside than others. Further than this, to solder quickly and with an economy of solder, with rosin as a flux, requires a skilful workman, whereas the beginner uses much solder, and at first, perhaps, hydrochloric acid instead of rosin as a flux. The acid, in contact with the solder, forms the very poisonous stannous chloride, which, in the hands of the beginner, is all the more likely to be used carelessly and get into the contents of the can. The manager of a canning-factory makes such a distinction between a good and bad solderer that each man is often made to put his mark on each can made, so that it may afterward be identified.

As to the can itself, if pure tin alone were used, the formation of a poisonous stannous compound sufficient to produce marked symptoms, even if eaten for a long time, would not be possible, as has been absolutely demonstrated. Some innocuous stannous hydrate would always be present, however. On the other hand, if lead in any quantity is used as an alloy with the tin, then is lead poisoning likely to follow, provided enough is eaten, and over a considerable time. Especially is this likely to occur in goods kept for a long time, or when the contents are left in such a defective can exposed to the air, or when such cans and their old contents have been "reprocessed." These last can be detected, as there are then to be seen two soldered-up holes instead of one in the head of the can; the sound cans have but one soldered-up hole. The contents should never be allowed to stand long in the can after opening, especially in warm weather. The can should contain on the label the name of the manufacturer and place of putting up, and be labeled "Standard." If a can has rust about the cap, air has very likely got in and the contents decomposed and formed possible poisonous compounds with the wall of can or solder; hence, reject such cans.

These points, in connection with the symptoms in any suspected case of poisoning from canned foods, will enable the practitioner to make a diagnosis. From consideration of the above facts he will be able to give his patients a just estimate of the dangers of poisoning from canned food, showing that such danger is small if the above precautions are attended to. Considering the vicissitudes that canned foods must pass through under the hands of the can-makers, the solderers, and the tradesmen, with the chance of being "reprocessed," or kept for years before reaching the consumer, it is surprising that so few cases of poisoning therefrom have been reported.

Professor Hills stated that the reader had given an impartial *résumé* of the literature of the subject, as it has appeared in the medical journals of the past few years. He criticised, however, the prevalent practice of attributing the symptoms which sometimes follow the ingestion of tinned foods to metallic compounds, without first ascertaining that the article ingested actually contains such compounds. It is not sufficient, moreover, to show that the food contains an unknown quantity of some metal. A quantity sufficient to account for the symptoms must be demonstrated before one is justified in attributing the symptoms to metallic poisoning. Symptoms resembling those of irritant poisoning not infrequently follow the ingestion of food which has not been preserved in tins, and in which chemical analysis has failed to disclose any irritant poisoning. Cases are

also recorded in which tinned foods, free from metallic salts, have given rise to similar symptoms. In these cases the symptoms could not have been caused by metallic irritants; and the speaker believed this to be true of a large majority of the reported cases of poisoning from tinned foods.

Two facts are well established with reference to these foods: First, they frequently contain traces of certain metals; they usually contain tin; not infrequently zinc or lead. Second, symptoms resembling those of acute irritant poisoning, and even death, have followed their ingestion. It has not been proved in any authenticated case, so far as the speaker could remember, that the symptoms have been caused by the metallic impurity.

It is important to bear in mind that the quantity of tin, lead, or zinc which a can of food contains is very small. The quantity of tin, when present, usually ranges from a few one-hundredths of a grain to one grain per pound, rarely approaching, however, the higher figure. These amounts are not likely to give rise to symptoms of acute poisoning, though, it is true, but little is known regarding the poisonous action of tin compounds, if we except the chlorides and the oxide. The speaker believed, however, that a quantity sufficient to produce harm is rarely present. If present, he believed that it would be recognized by its taste, and the food thus contaminated be rejected as unpalatable. Such cases, so far as there is any evidence, are rare. Lead in tinned foods is derived either from the tinned plate or from the solder. The quantity present in foods thus containing lead is too small to give rise to symptoms of acute poisoning. Zinc is frequently detected in tinned foods. Its presence is attributable to the use of the chloride of zinc solution as a soldering fluid. The speaker could not recall any cases in which a determination of the amount present had been made. He did not, however, deny the possibility of tinned foods, at times, containing a sufficient amount of chloride of zinc to cause symptoms of acute poisoning, or the possibility of such symptoms having been caused by this substance. He objected to attributing the symptoms in any case to chloride of zinc without a chemical analysis. The probability of the occurrence of such cases must be slight, since the solution employed is dilute, and a small amount only is used on each can. Through the carelessness of workmen, however, a quantity sufficient to produce symptoms might find its way into the food, but food thus contaminated would be rejected by reason of its disagreeable taste. It has been suggested that the excess of hydrochloric acid in the soldering solution may act upon the tin, forming the poisonous chloride of tin. If the soldering solution is properly prepared, and an excess is avoided in soldering the cans, it is not probable that a quantity sufficient to produce harm will be formed. If present in injurious amount it would undoubtedly be recognized by its taste. On the whole, these cases of acute poisoning as a result of metallic impurities in canned goods must be rare. All the cases thus far reported are based on insufficient evidence.

To what, then, are the symptoms to be attributed? Doubtless, in many cases, to idiosyncrasy on the part of the patient; in some cases perhaps to the decomposition of food. It is possible that in certain cases poisonous ptomaines may have been developed in the food. Finally, it must be borne in mind that cases of subacute poisoning may result from the use of copper utensils, or utensils containing lead, for the preparation of the food. Cases of poisoning from these causes are no more liable to occur with tinned foods than with other foods if proper care is exercised. The speaker thought that the principal danger to be apprehended from the use of canned foods was that of chronic lead-poisoning. Such cases have been reported and are always to be feared when these foods are used continuously for a considerable time. They are now used very largely n this way on shipboard and in the army. It is always a wise precaution to remove the food from the can as soon as the latter is opened, since the solution of the tin or lead may be favored by the presence of air. Analyses suggest the probability that time may be a factor in the solution of tin and lead. Foods which have been put up two or three years have been found to contain more of those metals than those put up more recently. It s advisable therefore to avoid old cans.

DR. BLODGETT observed that several cases of supposed poisoning from canned foods had recently been reported in the English journals, and that several important hints had been given as to the character of the contents of the can. The fact that the ends of the can are crowded outward or *bulged* is an indication that decomposition of the contained food may have occurred. The presence of two punctures in the cover of the can, which would indicate that the food as originally put up was not properly prepared, but underwent a process of chemical decomposition accompanied by the formation of gases which caused the ends of the cans to be projected outward. The top of the can is then perforated a second time and the gas allowed to escape, and a second drop of solder is then applied to the opening, thus showing conclusively that the contents of the can were not perfectly preserved when first sealed. In England it has been found that cans of improper food are often stripped of their paper wrapper and that the second puncture is then made upon the side of the can instead of at the end, and on replacing the wrapper upon the can, the second puncture cannot be detected.

PROFESSOR HILLS stated that the cases reported by Dr. Johnson before the New York Medico-legal Society were not proved, and should not be considered. The statements of Dr. Johnson rest upon pure assumption, and are not trustworthy. The flux that is commonly used is a saturated solution of zinc in chlorhydric acid; and no free acid exists by which any deleterious effect could be produced. It is desirable that, in cases of suspected poisoning from canned goods, a portion of the contents of the *identical can*, which is supposed to contain the poisonous substance, should at once be submitted for chemical analysis. If, under these circumstances, poisonous ingredients or products are detected in appropriate

amount, the claim against the foods might reasonably be entertained. Until this can be demonstrated, however, we must in most cases seek other causes for the unwholesome effects occasionally noticed after partaking of tinned or canned goods as articles of food.

Dr. White asked how long the family had subsisted on tomatoes before symptoms of poisoning were observed.

Dr. Doggett stated that tomatoes had been almost the sole and continuous article of food for two months previous to the occurrence of sickness.

Dr. White said that it would be quite improbable that two families should take water from the same supply-pipe and that lead-poisoning should occur in only one. The water must be excluded as the source of poisoning. We frequently notice that contaminated water will produce poisoning in some members of a family and not in others; but the freedom of one entire family from a disease which became general in another using the same water-service would seem to indicate that the water-supply was not the source of the poison.

Dr. Thomas Amory De Blois, then reported

TWO CASES OF RETRO-PHARYNGEAL ABSCESS.

Abscesses beneath the posterior wall of the pharynx should be interesting to every one, at least on account of the rarity of their occurrence, for whereas few have seen more than one or two cases, yet almost everybody has seen one. They should be quite as interesting to the general practioner as to the specialist, for they are more likely to occur in the practice of the former than the latter, on account of their usually being found in children, and of their being opened as soon as found. As to what constitutes a retro-pharyngeal abcess. We should carefully exclude the peritonsillar, or that which is found in the loose tissue around the tonsil, and in so doing might select the posterior pillar of the fauces as the anterior boundary; then any abcess posterior to these pillars, and situated beneath the pharyngeal wall, and from the vault of the pharynx above to the larynx below, should be included under his head.

It has been my good fortune to see five of these cases, two of which occured last month and within one week of each other, both being in very young subjects.

On the second of March, Dr. G. W. Galvin, being obliged to leave the city, requested me to see the child of Mrs. S., in South Street. I found the little boy, only three months old, lying on a lounge on his side. He was markedly anæmic, and breathed with great difficulty. The mother reported that the child had eaten nothing for twenty four hours, and that during the preceding night they thought he would die in one of the paroxysms of dyspnœa, of which he had had several. What struck me particularly in the child was that the head was not thrown back, as I had expected to find it.

In the history of the case, as given by Dr. Galvin, he had found an enlargement which seemed to point internally; this disappeared, and two swellings were found on the same side of the neck externally. One of these he incised, but found little, if any pus; subsequently the tumor was found in the throat.

Placing the child in its grandmother's arms, with its back to the light, by the aid of the head mirror, and a very small teaspoon (for the arch of the jaw was to small to admit the smallest-sized tongue-depressor), I gained an excellent view of a red swelling a little to the left of the middle of the pharynx, a large part being obscured by the tongue; there was also undoubtedly fluctuation on touch with the finger. Having with difficulty obtained permission to open the abscess, and after instructing the woman who held the child to reverse him, when told, as she would an hourglass, I got the point of a bistoury, well guarded with cotton, into it, and cut down till I reached my spoon. The child was inverted promptly, and the pus gushed out on the floor in large quantities, leaving no room for doubt that if the abscess had burst during sleep suffocation would have ensued. Having no syringe with me which would work, I had to wipe out the mouth repeatedly with a wet napkin.

The patient now seemed to be much weaker than before the evacuation of the pus; he was laid on the side with his head lower than his body, and occasionally a few drops of brandy and water were given, and finally the child took the breast. The following morning he was reported as being convalescent.

My second case, which I saw March 8th, was a patient of Dr. Disbrow, a female child of seven months, living in Columbia street, daughter of Mrs. H. The mother had been a patient of mine at the Dispensary about two years ago, and while pregnant had developed a peculiar and I suppose hysterical affection of the larynx, taking the form of aphonia, due to want of tension of both vocal cords; this persisted in spite of all remedies until after parturition, when it disappeared spontaneously.

Mrs. H.'s child was exceedingly pale and sick, but had been able to eat, and resisted with violent struggles all attempts to see the fluctuating swelling, which could be felt in the posterior wall of the pharynx, and which pushed forward the velum until the uvula stuck out almost erect. Only once before I cut was I able to sight the abscess, which, unlike the first one, was almost white, and stood in the median line, but this child's head was not thrown back any more than the other. I followed as far as possible my former procedures, except that in addition I had the father to hold the child's head. I think I must have been fifteen minutes trying to bring the abscess again into view, and when I did I cut exactly as I had before, except that the incision was not so long. The child was also turned head downward, and the mouth was syringed, the pus pouring through both nostrils, but there was no blood. On digital examination there appeared to be a second tumor below the first, which afterward seemed to drain off through the same opening, but it must have filled up again, for I heard of its opening spontaneously the next day. After the operation it appeared as if the child were about to go into collapse; the pulse could not be felt, the eyes closed, and she ceased to breathe; wine was given, also the breast after she had rallied a little, but she could not nurse. Yet I felt sure that none

of the discharge had entered the lungs, and on auscultation with the stethoscope they seemed to be quite clear of fluid. I tried all I could to rally the child, but when I left the house it seemed about an even chance whether she would live or die.

The next day, however, I received a letter from the father, stating that the baby was "playing on the floor as lively as a kitten."

Last year I mentioned a third case of pharyngeal abscess, which occurred at the Boston Dispensary, in a man, D. M., aged twenty-seven years, and whom I saw on the twenty-second of November, 1880. He had what appeared to be an acute pharyngitis, but he returned on the 24th with his head a good deal bent backward, and a large swelling behind the pharyngeal wall, which fluctuated. I had never seen a pharyngeal abscess before, and when I passed a bistoury into it was very much surprised at the large amount of pus which flooded the patient's mouth and throat. I quickly seized him by the hair and forced his head down into a spittoon which was on the floor, and he was thus enabled to clear his throat and nasal cavities without any of it entering his larynx.

Soon after this I was allowed to see a case in the service of, I think, Dr. Haven at the Dispensary. A little child, perhaps two years old. The head was carried markedly back into the episthotonus position, and there was so much pain and so little fluctuation that I gave it as my opinion that it was a case of disease of the cerebral vertebræ, but it afterward went to the Children's Hospital, and was finally aspirated, I believe.

About a year ago I saw a fifth case in consultation with Dr. Galvin; the child was young, and the swelling was so near the posterior pillar of the fauces that I always felt some doubt as to its being a true pharyngeal abscess. Dr. Galvin cut into it while I was present, but got only blood, either that night or the next day he cut again and got pus.

According to McKenzie and the authorities he quotes, these affections are idiopathic. Bokai at least counts one hundred and twenty-nine such out of one hundred and forty-four cases, whereas Cohen, quoting from Cautier, states that "it appears to be idiopathic in some few instances only."

In the last volume of the Transactions of the American Laryngological Association, in the exhaustive article by Dr. J. O. Roe, of Rochester, on this subject, this gentleman quotes twelve different authorities who seem to hold twelve different opinions as to the causation of these affections. They range all the way from suppuration in the region of the perineum, by Nélaton, to chronic "snuffles," by Frankel.

In none of the five cases which I saw was there any assignable cause; there was no syphilis nor other constitutional affection that I could learn. None of the cases appear to have been well nourished, but no worse than is frequently found in that sphere of life. The hygienic surroundings were what appear to be inseparable from poverty in a large city.

In the first two cases which form the subject of this paper it will be observed the extreme prostration which followed the evacuation of the contents of the abscesses; in both cases the children luckily recovered; but would they have survived the operation had they been less strong?

Of course, incision is the procedure which most would follow in dealing with these cases; but may not death in some instances ensue from shock? Would aspiration be any safer than rapid evacuation? and if emptied by the aspirator, is not the probability of the abscess refilling much greater?

I should also like to draw attention to the fact that the heads in these two cases were not carried in what I always believed to be the "pathognomonic" position,—so that symptom was lacking.

One child was unable to swallow, while the other appeared to have no difficulty in doing so, although its abscess was larger and appeared to obstruct the pharynx more.

As to the incision, it has variously been advised to make it longitudinally, traversely from below, upward, etc., but it seems to me that the cut should be made from as near the soft palate as you can get, without injuring it down until you come to the depressor which will protect the tongue, and of course the more dependent portion of the abscess should be laid open if possible.

The holding of a child with its feet in the air, or the forcing of an adult's head toward the floor are precautions worth observing, for even in the case of the one grown person mentioned, the liberation of the pus was so sudden and overwhelming that it was no easy matter to clear the throat quickly.

I have never seen a case of retro-pharyngeal abscess due to disease of the spine, but it is this class that refill, recur, or do not get well. The idiopathic and the traumatic begin and end with the one attack.

DR. F. H. HOOPER stated that his experience in this rare disease comprised but few cases. Of these, one occurred in the Massachusetts General Hospital, and was brought to the notice of Dr. Hooper by Dr. Cabot. One case was seen in Vienna, and occurred in a male patient in the ward of Professor Schrötter. In this case there was great swelling situated low down in the pharynx, in which obscure fluctuation could be detected. Dr. Hooper operated by the aid of the mirror and the Schrötter bistoury, but did not succeed in evacuating pus. Professor Schrötter operated afterward, when it became apparent that the swelling was due to a hypertrophy of the thryoid gland, which extended completely around the pharnyx, so as to appear as a prominence behind, and had been incised. Fortunately the hæmorrhage was easily controlled. One other case was seen in Vienna.

DR. BLODGETT mentioned one case within his observation in which the nature of the disease was not fully recognized, and treatment was mainly expectant. After a period of four days the abscess suddenly opened spontaneously and a copious discharge of pus occurred, from which the patient was quickly suffocated and immediately died. Dr. Blodgett thought that too much stress could not be upon the necessity of quickly inverting the patient so as to allow the contents of the abscess to escape from the mouth, as the amount of pus was frequently much

greater than could have been anticipated, and the danger of immediate death from suffocation is always present. It would seem that in hardly another form of surgical disease was timely and judicious operative interference more urgently demanded than in cases of retro-pharyngeal abscess.

Dr. Blodgett asked if necrosis of the vertebræ or hypothic deformity were ever produced by a purulent process located in immediate contact with the vertebral column.

Dr. De Blois replied that this has not been observed, owing doubtless to the acute character of the disease as well as to the fact that some form of acute meningeal inflammation would probably be induced by the invasion of the vertebral column in the rapid manner in which this would occur from a pharyngeal process, and that a fatal result would almost of necessity ensue before necrosis or exfoliation of the bony tissues could occur.

ROCKY MOUNTAIN MEDICAL ASSOCATION.

Fourteenth Annual Meeting.

The fourteenth annual meeting of the Rocky Mountain Medical Association was held in the parlors of the St. Charles Hotel, New Orleans, Wednesday, April 29th, 1885.

The President, Dr. George Sutton, of Aurora, Indiana, occupied the Chair; Dr. John Morris, of Baltimore, Md., Secretary.

The following members were in attendance: Drs. N. S. Davis, Parsons, Shively, Toner, Sutton, of Pittsburgh, Stormont, Harding, Hibberd, Helm, Pollock, Sutton, of Aurora, Ind., Bartlett, and Morris. Honorary members present: Mrs. Hibberd, Mrs. Helm, and Mrs. Morris.

The Secretary reported the deaths of three members during the year: Dr. A. B. Hovey, of Tiffin, Ohio, Dr. George F. Hilliard, of Evansville, Ia., and Dr. J. S. Moore, of St. Louis Mo.

The President then read his address, which was a most interesting and scientific paper, embracing a geological and archæological study of the immense plateaus west of the Rocky Mountains. At the conclusion of the address a resolution of thanks was passed, with a request that the address should be published in some scientific journal.

The Association adjourned to meet in St. Louis the first Wednesday in May, 1885.

John Morris, Secretary.

FOREIGN CORRESPONDENCE.

LETTER FROM BERLIN.

[FROM OUR OWN CORRESPONDENT.]

Microscopical Notes—Imbedding.

Imbedding in Paraffin. The object may be hardened in any fluid medium, alcohol, Müller's fluid, osmic acid or corrosive sublimate. Here it should remain for 24 to 48 hours. Then remove to chloroform, oil of bergamot, oil of turpentine or oil of cloves. Allow the object to remain here from one to 24 hours, until it is saturated. Then remove to soft paraffin (a little turpentine or bergamot, or medium in which the object has been soaking, should be mixed with the paraffin, to make it softer and to keep it fluid at a low temperature). Place the vessel with the parafine and object in an oven at as low temperature as it will remain fluid. Allow the object to remain in the fluid paraffin from one to 24 hours. Then place it in melted hard paraffin; let it cool after fixing the object in the position desired.

To mount on glass slides—Objects colored in toto. Pour a thin solution of shellac in alcohol over a clean glass slide, with a soft pencil moisten the surface on which you wish the section to rest with creosote, using the smallest possible amount. Cut sections dry and place them in series on the surface moistened with creosote, with a fine brush or feather bring all parts of the section in contact with the creosote. Dissolve the paraffin from the section by pouring benzine or xyol over it. Cover specimens with Deckglass and Canada balsam.

Objects not colored in toto. Cut the specimens and arrange in series on glass slides. Add with fine pencil a drop of thin collodion to each section. Let it dry. Dissolve paraffin as before. Place in absolute alcohol for 15 minutes. Color sections on slide with any coloring solution. Return slide and section to absolute alcohol; allow it to remain here ten minutes. Mount in Canada balsam.

Imbedding in Celloidin. Buy the celloidin dry and dissolve it in equal parts of ether and absolute alcohol. Let the specimens remain in absolute alcohol from one to three days, in order to dehydrate them. Then put them into thin celloidin, alllowing them to remain there for 24 hours. Pour off the thin celloidin and add thick celloidin. In this the specimens should remain another 24 hours. Remove the specimens to paper box or to cork. Allow the celloidin to harden partially; add thick celloidin until the object is sufficiently colored. Let it harden to the consistency of rubber. Place in 70 per cent. alcohol, and allow to remain here until needed. Cut your sections under alcohol and never allow them to get dry.

How to bring out Endothelium. Expose mesentery of frog and pour over it a 27 per cent. solution of nitrate of silver while in the body. Then wash in distilled water. Dissect out mesentery and stretch it over a cork. Pour over it a solution of coloring matter—hematoxylin—then remove it to alcohol. Cut the sections under alcohol, and slip the section on to the cover glass, which is also under the alcohol. Mount in balsam.

Points to remember. Sections that have been washed in distilled water must be mounted in gum glycerine; those soaked in alcohol can be mounted in balsam. Acetic acid brings out nuclei; does not affect micro-organisms. Iodine colors nucleus. Solution of silver nitrate, one-fifth per cent., stains the cement substance between the cells, also the nerve fibres and ganglion nerve cells. A little salt solution will neutralize the silver solution. Caustic soda swells up the elastic tissue fibres, but dissolves the non-elastic fibres. Liquor potassæ leaves micro-organisms unaltered.

Weigert's double stain. Mix together a saturated watery solution of aniline, 100 cm. (aniline oil 1 part, dist. water, 3 parts) and saturated alcoholic solution of fuchsin, 11 cm. Stain well and wash in distilled water, then transfer to alcohol for ten seconds, and place in the following solution for two or three hours: Distilled water, 100 cm.; Saturated alcoholic solution of methyl-blue, 20 cm.; formic acid, 10 minims. Then wash in alcohol, pass through clove oil and mount in balsam.

Koch's method of staining for tubercle bacilli. First stain in alkaline methyl-blue (mixed with a 10 per cent. sol. of caustic potash) for 24 hours, or for one-half to one hour at a temperature of 40° C., then stain in a concentrated solution of vesuvin. Wash with water, then with alcohol, and mount in Canada balsam. Another method is: First filter and heat a watery solution of aniline oil. Add enough of a saturated solution of fuchsin to give a metallic lustre from the service. Let the cover glass remain here from two to five minutes. Then transfer to blue solution (saturated sol. of methylin blue in 20 parts nitric acid, 30 parts alcohol and 50 parts water) and let cover glass stay in about two minutes. Wash in distilled water; dry between two pieces of blotting paper. Mount in balsam.

Permanent specimens of micro-organisms. Place the sections in a shallow dish with the coloring matter. Leave there until well colored. Take it out with a needle, wash it in distilled water, then in alcohol, and leave it in the latter until the excess of coloring matter is removed. Spread it out on object glass and put a drop of oil of cloves on it. Drain off the excess of oil and add a drop of Canada balsam, in chloroform or benzine, and cover with cover glass. In leprosy, the specimen is stained with magenta, then washed in distilled water, then stained with methyl-blue, washed and mounted. The micrococcus of gonorrhœa and of croupous pneumonia are best stained with methyl-blue and vesuvin. The anilin dyes in use are methyl-blue, methyl-violet, vesuvin, Bismarck brown, magenta, fuchsin, rosanilin, gentian-violet, Spille's purple, eosin, dahlia, purpurin, and iodine-green. The washing is to be carried out in all cases, except with tubercle-bacilli, and the bacilli of glanders, with distilled water, then with alcohol. Lustgarten's stain for syphilis is as follows: First harden in alcohol for twelve or twenty-four hours, then place for two hours in a dye composed of eleven parts of a concentrated alcoholic solution of gentian violet and 100 parts of aniline water at a temperature of 104° F. Then wash with absolute alcohol, and place for ten seconds in a permanganate of potassium solution (1½ per cent.). Then transfer to pure sulphurous acid and allow them to remain until all excess of color is removed. Then wash in distilled water, and pass through the permanganate solution again. Then wash again in sulphurous acid, and so on until *all color* is removed. Mount in oil of cloves after extracting the water with alcohol.

In the course of a lecture not long ago, Dr. Grawitz said that the round or formative cells, in acute cases, came from the blood corpuscles, and in chronic cases from proliferation—a position which probably he would find some difficulty in proving. He was probably desirous of harmonizing the Cohnheim and Virchow schools, and did not wish to seem to be, even, lacking in respect for his great master. It certainly is possible that the formative cells may come from both the blood-corpuscles and the connective tissue. Time and time again I have seen the two kinds of cells, the one having all the appearance of leucocytes, while the second kind contain two or three nuclei. The epitheloid cells become stellate or spindle-shaped. After a time these processes grow out and become converted into fine fibres, together with some of the substance of the cell itself, the rest of the protoplasm remains as the fixed connective tissue cell. Neighboring cells send out fibrillæ, which communicate and form fibrillated connective tissue.

H. R. B.

DOMESTIC CORRESPONDENCE

HYSTERO-CATALEPSY.

Dear Sir:—Owing to the general infrequency of this disease, as well as the rarity of its coming under the observation of every practitioner, even in the most lengthened term of experience, I deem it incumbent upon me to report my case. Having had charge of one of our largest asylums for girls for the past seven years, in which this young woman was raised from infancy to womanhood, now serving in the capacity of assistant, it was only within the past year that my attention was called directly to the unusual phenomena in her case.

She is about 30 years of age, of good general health, aids frequently in the washing and ironing of the clothes of the inmates, but not exposed, as there are permanent fixtures in the main building. She had been somewhat irregular as to her catamenia, often premised by and accompanied with pain, as in ordinary dysmenorrhœa. I had ascribed this condition somewhat to more or less dampness of the garments at her waist, from splashing when washing clothes, and prescribed accordingly for the immediate relief of the trouble, and ordered suitable tonics during the inter-catamenial period. Yet her general health was always good; she always ate well, and complied promptly with the requirements made of her. I have never examined her *per vaginam*, since she is a virgin; I have never felt that I should destroy her virginity by the insertion of a speculum. The pathognomonic features being indubitable in such a case, even the least caution observed would detect them, and I imagine that the same could detect the artistic malingerer.

Since nothing is known of the pathology of this disease, it would be *apropos* to denominate it one of the neuroses. Manifesting itself as it does, coincidently with her catamenia, I consider the consociation of the two terms *hystero-catalepsey*, suitable, both to define origin and nature of the disease. When I saw her in the midst of a cataleptic condition, I found her to be a most perfect counterfeit of death; even the respiration was so slightly superficial that one would not detect it, and with a feebly

soft compressible pulse. To verify my diagnosis to the matron of the asylum, I lifted her arm in mid-air, and releasing my hold, it remained until I forced it down by some little pressure; and likewise I elevated her right foot with the identical result. The general rigiditas corporis was typical, just as instantaneous; she would utter a piercing shriek as if in pain, and toss about violently, and subside into a low moaning condition, ultimately in to a comatose state; when not violent in her seizures she would alternately laugh, cry, and talk at random. Even the freely appearing menses would not cause an immediate arrest of the phenomena, yet to facilitate the flow, I would have stupes (*of turpentine and hot water*, ℥j Oj) applied to whole surface of abdomen, repeated conformably to her tolerance and restoration. During the first attack, I gave her ½ gr. morph. sulph. hypodemically, with controlling benefit, shortening the the attack. The second attack was controlled by chloral and bromide of potash compounded in enema opii, repeated as indicated. In each of her attacks or seizures, the duration was four or five days before perfect restitution was effected, and save an extreme prostration subsequently she suffers no inconvenience. She is now at her post, and upon the next seizure, I will make more minute notes as to pulse, temperature, character of urine as also exact duration of attack from incipiency to termination. I have placed her upon a strictly tonic treatment.

GEORGE W. MONETTE, M. D.

285 Camp street, New Orleans, June 20, 1885.

THE INTERNATIONAL CONGRESS COMMITTEE.

EDITOR JOURNAL AMERICAN MEDICAL ASSOCIATION.

Dear Sir:—I notice in the report, as published in the JOURNAL, of the proceedings of the meeting of the Committee of the American Medical Association on the International Medical Congress, that my name appears among those present at the meeting. I was not present, and I do not approve of what was done at the meeting. Yours truly,

WM. PIERSON.

Orange, N. J., July 8, 1885.

HYDATID TUMORS OF THE BRAIN.

Sir:—Allow me to call attention to two points in the paper by Dr. R. Harvey Reed, on "Hydatid Tumor of the Brain," published in the JOURNAL of July 4th. (1) The term hydatid tumor should be, and usually is, limited to the echinococcus cyst, the larvæ of the Tænia echinococcus or Hydatid tapeworm. The terms "cysticercus" or "measle" should be used in describing the larva of the Tænia solium. (2) The cases reported by Dr. Reed cannot as they stand be accepted as instances of hydatids or of cysticerci. The description of the cysts is too meagre, and a microscopical examination does not appear to have been made, without which it is in many cases impossible to determine the parasitic nature. From the position of the cysts in the lateral ventricles in each case, it seems probable that Dr. Reed has been dealing with the not uncommon hydatidiform cysts of the choroid plexuses, structures which have on several occasions been sent to me as possibly parasitic.

Interest in the subject of echinococcus disease in this country must be my excuse for thus encroaching on your space. I am, yours etc.,

WILLIAM OSLER.

University of Pennsylvania, July 7, 1885.

NECROLOGY.

WILLIAM T. WRAGG, M. D.

The custom of commemorating, in some form, the death of one who has impressed his fellows by his virtues or his actions is of very ancient date, and its continuance at present is not only evidence of its propriety, but of its filling a want that the mind of every person admits to exist. In reviewing the life of him who so lately has been taken from amongst us, one cannot fail to be reminded that death has removed from our ranks a faithful, efficient and esteemed brother; one who loved the profession, sought its advancement and respected all its usages.

On the 30th of May, 1885, Dr. William T. Wragg, one of the oldest and most esteemed physicians of the State of South Carolina, died at his residence in the City of Charleston, S C. He was born near Georgetown, S. C., removed with his parents, Major and Mrs. Samuel Wragg, to Charleston in 1819. He entered the South Carolina College, where he graduated in 1827. He chose the medical profession as his pursuit through life, entered the office of Dr. J. M. Campbell as a student, and attended the "Medical College of the State of South Carolina" for three years, graduating at that institution in March, 1830. In the following May he went to Paris with Dr. J. E. Holbrook, professor of anatomy in this college, where he pursued his medical and surgical studies, and after visiting all the hospitals, made the wards of Hôtel Dieu his constant care; every day found him in attendance at the visits and clinique of the greatest surgeon and diagnostician of his age, Dupuytren. Here also lectured at that time the great physiologist and vivisector, Magendie. A few weeks after his arrival the famous revolution of July, 1830, broke out, and hundreds of men, women and children filled the wards of Hôtel Dieu, with every kind of wound, gunshot, sabre, bayonet, cannon ball, and wounds from stones and other missiles. Here Dr. Wragg learned those lessons which gave him success in his practice in after years.

Soon after his return home, Dr. Wragg entered upon the practice of his profession, and continued it successfully to the time of his death. In 1847, Dr. Wragg was made treasurer of the "Roper Hospital Fund," a fund bequeathed to the Medical Society of South Carolina by Mr. Thomas Roper with which to build a hospital. His administration of this office shows how careful he was of trust reposed in him, and how his judicious management has enabled the trustees to execute the testator's benevolent intentions. The fund was under Dr. Wragg's management from 1847 to the day of his death—37 years—

and notwithstanding unavoidable losses during the late war, is at the present time nearly double the amount of the original sum.

He was an able and constant contributor to the *Charleston Medical Journal*. He was conspicuous for his erudition and professional acquirements, while his purity and devotion of character, his urbanity and professional courtesy were known and appreciated by all. Dr. Wragg was held in high esteem by the medical profession, and at a meeting of the physicians of the City of Charleston, on account of his death, after eloquent remarks by some of his most intimate friends, the following resolutions were unanimously adopted:

Resolved, That in the death of our brother and ex-President, Dr. Wm. T. Wragg, this Society has sustained the loss of an eminent and esteemed member.

Resolved, That our sympathies are extended to his family in their great bereavement.

Resolved, That in consideration of his faithful services as custodian of the "Roper Fund" for thirty-seven years the Society erect a tablet in this Hospital to his memory.

Resolved, That a copy of these proceedings be transmitted to the family of the deceased, and to the daily newspapers of the city.

MISCELLANEOUS.

COLLEGE CHANGES.—Recently DR. N. SENN, of Milwaukee, Wis., has accepted the Chair of Principles and Practice of Surgery, previously occupied by Dr. R. L. REA, in the College of Physicians and Surgeons, of Chicago; and DR. CHRISTIAN FENGER the Chair of Clinical Surgery in the same College.

In the Chicago Medical College, Medical Department of the Northwestern University, PROFESSOR E. O. F. ROLEK has been transferred to the position of Emeritus Professor on account of continued ill health, and DR. W. W. JAGGARD has been appointed Professor of Obstetrics, the duties of which position he had discharged for the last two years with the highest degree of satisfaction on the part of both Faculty and students.

DR. N. S. DAVIS, JR., Lecturer on Pathology and Pathological Anatomy, will fill the place vacated by the resignation of PROF. FENGER. He has just returned from a few months stay in Vienna and Heidelberg, where he devoted his time almost exclusively to a study of morbid anatomy and pathological histology.

INTERNATIONAL NOTIFICATION OF INFECTIOUS DISEASES.—At the recent International Sanitary Conference held in Rome, two propositions relating to international notification of cases of infectious diseases were passed at the last session of the Technical Subcommission. These propositions are as follows:

1. The Technical Committee expresses the wish that the International Conference affirm the necessity of publishing a bulletin of international statistics for each important city, a bulletin on a uniform plan, and publishing each week the total deaths and the number of deaths caused by each infectious disease, and particularly by cholera and by yellow fever.

2. As concerns cholera and yellow fever, notification of the first cases which appear in different localities, and particularly in maritime ports, should be immediately sent by telegraph to the various governments.

The application to yellow fever was introduced by the delegate from the United States as an amendment, the proposition as first reported having taken no account of this pest of the West Indies, which from an American point of view is quite as worthy of consideration as is the Asiatic pestilence which has almost exclusively occupied the attention of the International Sanitary Conference of Rome.—*Medical News*, June 27, 1885.

PRIZES OF THE UNIVERSITY OF AMSTERDAM.—The Faculty of Medicine of the University of Amsterdam has given the subject of the prize-dissertation for 1886 as "The Therapeutics of Iron and the Absorption of Iron Sutures." The essays must be delivered to the Secretary of the Senate by May, 1886, and the result will be announced, and the gold medal awarded to the author of the best essay in September, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 4, 1885, TO JULY 10, 1885.

Captain Valery Howard, Assistant Surgeon, assigned to duty at Ft. Wadsworth, New York Harbor.

First Lieutenant M. C. Wyeth, Assistant Surgeon, assigned to duty at Ft. Wayne, Mich. (S. O. 140, Dept. East, July 2, 1885.)

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING JULY 11, 1885.

Byrnes, J. C., Passed Assistant Surgeon, detached from the "Powhatan" for duty at Navy Yard, Norfolk, Va.

Cordeiro, F. J. B., Assistant Surgeon, to the "Powhatan" as relief of P. A. Surgeon Byrnes.

Curtis. L. W., Assistant Surgeon, to Philadelphia for examination preliminary to promotion.

Drennan, M. C., Surgeon, placed on waiting orders.

Fitzsimmons, P., Surgeon, duty on Receiving Ship "Franklin," Norfolk Navy Yard, continued until July 1, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE TWO WEEKS ENDED JULY 11, 1885.

Fessenden, C. S. D., Surgeon, leave of absence extended sixteen days, on account of sickness, July 1 and 9, 1885.

Bennett, P. H., Assistant Surgeon, granted leave of absence for twenty-two days, July 9, 1885.

CORRIGENDUM.

Sir:—In writing to the *Lancet* on the diagnosis of submersion during life or after death, I made a mistake in translating the French word "mousse" to moss, which is evidently incorrect. It should be *froth*. In fact the correction was made in the *Lancet* of the 21st March, p. 547, which I must ask you to be good enough to correct also, as I find the article referred to has been reproduced in the JOURNAL of May 23.

I am, Sir,

Yours obediently,

PARIS CORRESPONDENT OF THE LANCET.

PARIS, June 19, 1885.